WESTERN BIRDS

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Cover photo by © Jack Wilburn of Rescue, California: Great Gray Owl *(Strix nebulosa)*, Yellowstone National Park, October, 1995.

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Send manuscripts to Philip Unitt, San Diego Natural History Museum, P.O. Box 1390, San Diego, CA 92112. For matter of style consult the Suggestions to *Contributors to Western Birds* (8 pages available at no cost from the editor) and the *Council of Biology Editors Style Manual* (available for $24 from the Council of Biology Editors, Inc., 9650 Rockville Pike, Bethesda, MD 20814).

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WESTERN BIRDS

Volume 27, Number 1, 1996

EIGHTEENTH REPORT OF THE CALIFORNIA BIRD RECORDS COMMITTEE: 1992 RECORDS

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In this article we report the results of the recent review of 253 records of 96 species by the California Bird Records Committee (hereafter the Committee or CBRC). Of these records, 219 were accepted, for an acceptance rate of 86.6%. This rate is higher than in recent reports, primarily the result of an unusually large number of accepted records of passerines normally associated with the southeastern United States during the spring of 1992. This report contains records from 1954 through 1993, although the great majority are from 1992.

Three species newly added to the California state list are included in this report: the Great Frigatebird (*Fregata minor*), Black-tailed Gull (*Larus crassirostris*), and Fork-tailed Flycatcher (*Tyrannus savana*). The list now stands at 587. The earliest accepted records of two species already on the California list are published here: the Mississippi Kite (*Ictinia mississippiensis*) and Gray Catbird (*Dumetella carolinensis*).

All records reviewed by the CBRC are archived at the Western Foundation of Vertebrate Zoology, 439 Calle San Pablo, Camarillo, California 93012. All written documentation, photographs, voice recordings, and videotapes are housed there, catalogued, organized by CBRC record number, and are available for public review. The CBRC solicits information on all occurrences in California of species on its Review List (see Roberson 1993), as well as species unrecorded in California, and requests that documentation be sent to Michael A. Patten, CBRC Secretary, at the address above. For further reading on how the Committee functions, see Heindel and Garrett (1995) and Patten et al. (1995).

The format closely follows that of recent reports (e.g., Patten and Erickson 1994, Heindel and Garrett 1995). In general, records are listed chronologically by first date of occurrence. Included with each record is the location, county abbreviation (see below), and date span. The date span

generally follows that published in *American Birds*. If the CBRC accepts a date span that differs from a published source, the differing dates are italicized. Initials of the observer(s) responsible for the record, if known, are followed by a semicolon, then the initials of additional observers submitting documentation, then the CBRC record number. All records are sight records unless otherwise noted. Initials followed by a dagger (†) indicate the observer supplied an identifiable photograph. Similarly, (‡) designates videotape, (§), a voice recording. A "#" indicates a specimen record, and is followed by the acronym (see below) of the institution housing the specimen and the institution's specimen number.

An asterisk (*) prior to a species name indicates that it is no longer on the Review List. The number in parentheses following the species' name is the number of records accepted by the CBRC through this reporting period. Two asterisks (**) after this number indicate that the number of accepted records is limited to a restricted review period or includes records accepted for statistical purposes only (see Roberson 1986 for more information).

When an individual bird returns to a locality after an absence (for example, in consecutive winters), or remains for multiple years, each subsequent occurrence is reviewed as a new record. The Committee judges, by a majority vote, whether or not the same individual is involved. If a majority of the Committee considers it the same bird, that information is included in the comments, and the total number of records remains unchanged.

Although the Committee does not formally resolve identification issues below the species level, comments on age, sex, or subspecies are often included. The authors of this report assume responsibility for all such comments, although they are usually based on input provided by Committee members during circulation of the record.

The Committee uses the following codes for California counties: ALA, Alameda; ALP, Alpine; AMA, Amador; BUT, Butte; CLV, Calaveras; COL, Colusa; CC, Contra Costa; DN, Del Norte; ED, El Dorado; FRE, Fresno; HUM, Humboldt; IMP, Imperial; INY, Inyo; KER, Kern; KIN, Kings; LAK, Lake; LAS, Lassen; LA, Los Angeles; MAD, Madera; MRN, Marin; MRP, Mariposa; MEN, Mendocino; MER, Merced; MOD, Modoc; MNO, Mono; MTY, Monterey; NAP, Napa; NEV, Nevada; ORA, Orange; PLA, Placer; PLU, Plumas; RIV, Riverside; SAC, Sacramento; SBT, San Benito; SBE, San Bernardino; SD, San Diego; SF, San Francisco; SJ, San Joaquin; SLO, San Luis Obispo; SM, San Mateo; SBA, Santa Barbara; SCL, Santa Clara; SCZ, Santa Cruz; SHA, Shasta; SIE, Sierra; SIS, Siskiyou; SOL, Solano; SON, Sonoma; STA, Stanislaus; SUT, Sutter; TEH, Tehama; TRI, Trinity; TUL, Tulare; TUO, Tuolumne; VEN, Ventura; YOL, Yolo; YUB, Yuba.

Museums that have allowed Committee members access to specimens, have provided information, or house specimens are cited below are as follows: CAS, California Academy of Sciences, San Francisco; CMN, Canadian Museum of Nature, Ottawa, Canada; FM, Field Museum of Natural History, Chicago; LACM, Natural History Museum of Los Angeles County, Los Angeles; LSUMZ, Museum of Zoology at Louisiana State University; ROM, Royal Ontario Museum, Toronto; SBCM, San Bernardino County Museum, Redlands; SDNHM, San Diego Natural History Museum; UMMZ, University of Michigan Museum of Zoology, Ann Arbor; and WFVZ,

Western Foundation of Vertebrate Zoology, Camarillo. Other abbreviations used are AFB, Air Force Base; I., island; L., lake; mt., mountain; n. miles, nautical miles; NM, National Museum; NWR, national wildlife refuge; Pt., point; R., river; SB, state beach; and SP, state park.

RECORDS ACCEPTED

YELLOW-BILLED LOON *Gavia adamsii* (55). Single individuals were seen at Whiskeytown Reservoir, SHA, 30 Dec 1991–17 Feb 1992 (DLR; FG, SBT; 31-1992), Morro Bay, SLO, 10 Dec 1992 (TME, CM†; 304-1992), Santa Barbara, SBA, 11 Dec 92 (J&PC; SEF†, PEL; 12-1993), and in San Francisco Bay, SF, off Alameda Creek and then off San Lorenzo Creek 20–24 Dec 92 (DRi; RJR; 124-1993).

All of these records appear to pertain to first-year birds, which account for most California records. The Shasta record is of particular interest in being inland. Disappointingly, however, the documentation was rather brief, given the significance of inland reports. A number of observers failed to submit any supporting details. We encourage all observers to send in their notes to document these records fully. The Santa Barbara record, one day later than and 100 miles south of that at Morro Bay, could possibly pertain to the same individual, but these two were considered as different.

MOTTLED PETREL *Pterodroma inexpectata* (53). One was 109 n. miles west of Pt. Arguello, SBA, 11 Feb 92 (PP; 76-1992), and another was 71 n. miles west of Pt. Arguello, SBA, on the same date (PP; 77-1992). Although the first bird was photographed, no detail was discernible in the pictures, and so the record is listed as a sight record. Although not annual, this species is occasionally seen in late winter/early spring well off the coast of California.

STEJNEGER'S PETREL *Pterodroma longirostris* (6). One was 153 n. miles SW of San Nicolas I., VEN, 4 Jul 1992 (PP; 203-1992), and another was 189 n. miles WSW of San Nicolas I., VEN, 10 Jul 1992 (PP; 204-1992). Both records are significant because they are the first for summer off our coast; the previous records have been for late fall. A third bird was seen on 10 Jul 1992, 209 n. miles from the island, outside of our region of coverage, so was not reviewed. In comments, Pyle relayed that Patrick Gould (pers. comm.) found Stejneger's the most common *Pterodroma* in the south-central Gulf of Alaska in summer. Presumably, these Alaska birds account for our fall records (as they move south), but perhaps some Stejneger's also spend the summer with Cook's Petrels (*P. cookii*) far offshore. Pyle noted large numbers of Cook's (up to 200/day) in the same area during early July 1992.

RED-TAILED TROPICBIRD *Phaethon rubricauda* (8). Immatures were 129 n. miles WSW of Pt. Sur, MTY, 8 Aug 1992 (JLD, PP†; 227-1992), and 87 n. miles WSW of Pt. Piedras Blancas, SLO, 19 Aug 1992 (Figure 1; SFB, RAE, DR†; 229-1992). These well-documented records provide increasing evidence that this species probably occurs with some regularity at this season. The descriptions and photos show a large, robust tropicbird with a large blackish bill, nearly all-white wings and a small eye patch. There was fine barring on the upperparts and a slender and stiff tail streamer.

MASKED BOOBY *Sula dactylatra* (5). An adult was at the Salinas R. mouth, MTY, 18, 20, and 22 Jun 1992 (Figure 2; JB, RD; SFB†, RC, JM, DR†; 174-1992). An adult booby reported (but not reviewed by the Committee) at Capitola Pier, SCZ, on 8 Jun could have been the same bird. Another adult flew by Mugu Rock, VEN, 20 Jun 1992 (DDe, BH; 209-1992). An immature was off Newport Pier, ORA, 30 Jun

1992 (DRW, BED; 210-1992). With only two prior California records, this "invasion" was unexpected.

BROWN BOOBY *Sula leucogaster* (40). An immature frequented SE Farallon I., SF, 25 May–24 Nov 1992 (PP†; FG; 162-1992). An adult (or near-adult) was over Mountain View, in San Francisco Bay, SCL, 29 Aug 1992 (MMa; 243-1992). The Farallon I. bird was absent from 16 Sep to 7 Oct, but returned to finish its stay on the same perch. Pyle noted that it fed on juvenile Pacific Sardines (*Sardinis sagax*), the first of these noted around the island in 40 years. The record from inside San Francisco Bay is most unusual, but unfortunately the bird did not remain for others to see.

RED-FOOTED BOOBY *Sula sula* (10). An immature was approximately 166 n. miles WSW of San Nicolas I., VEN, 1 Feb 1992 (PP†; 73-1992). Photographs show a fairly uniform brown body with bright pinkish-red feet. The bill was mixed dull blue and pinkish, with a dusky tip. The soft-part colors are diagnostic for this species.

NEOTROPIC CORMORANT *Phalacrocorax brasilianus* (4). An adult was photographed at Imperial Dam, IMP, 12 Sep 1992 (Figure 3; JTa†; 15-1993). The date and location fit the species' limited pattern of occurrence. The photograph shows a cormorant with a small body, short bill, and relatively long tail, all excellent marks for the Neotropic.

GREAT FRIGATEBIRD *Fregata minor* (1). A female, apparently adult or near-adult, was at SE Farallon I., SF, 14 Mar 1992 (PP†; EE; 121-1992); a photograph was published in *Am. Birds* (46:500). Most of the Committee had to take a crash course in frigatebird identification, as we normally see just one species, the Magnificent (*F. magnificens*). Pyle immediately suspected that this bird was a Great, from his experience with that species in Hawaii, among other places. Fortunately, the bird

Figure 1. Red-tailed Tropicbird, *Phaethon rubricauda*, 19 August 1992 (229-1992), well off Pt. Piedras Blancas, SLO. Diagnostic features visible in this photograph are the extensively white wings, small eye patch, large bill, and fine barring on the upperparts. The bird also appears rather large for this genus.

Photo by Don Roberson

came back after distant views and flew overhead, allowing the pictures to be taken. The combination of a dark head and gray throat is unmatched in *F. magnificens*. A small amount of rufous was present at the sides of the nape, a mark indicative of *F. minor*. There are also subtle differences in the pattern of black and white on the breast (see Howell 1995 for a thorough discussion of this difficult problem).

The CBRC was also concerned about eliminating the next most likely species, the Lesser Frigatebird (*F. ariel*). The bird in question was too large for a Lesser (as assessed in direct comparison with a Western Gull, *Larus occidentalis*) and had dark axillars, whereas a Lesser would show a distinct white spur.

This record points out the need for all frigatebirds seen in California, particularly those out of season, to be critically reviewed. The majority of our records for the Magnificent are from the Salton Sea and coastal southern California from late June to September.

TRICOLORED HERON *Egretta tricolor* (7**). An adult was at the south end of the Salton Sea, IMP, 4–11 Jul 1992 (GMcC, MAP†; 178-1992). An immature was near Santa Rosa, SON, 7–19 Nov 1992 (LL‡, JM, BDP; 284-1992). An immature was at the Tijuana R. mouth, SD, 24 Oct 1992–18 Jan 1993 (TC, GMcC; 16-1993). The Sonoma bird was the second to be recorded from northern California (the first was at Honey Lake, LAS, 24 Aug–26 Sep 1971; Manolis 1972).

REDDISH EGRET *Egretta rufescens* (62). An adult was at Pt. Mugu, VEN, 28 Mar 1992 (HC, AS; 105-1992). Another was in Anaheim Bay, ORA, 12–14 Apr 1992 (SM; BED, RAE; 133-1992). An immature was on San Diego Bay, SD, 17 Apr–19

Figure 2. This adult Masked Booby, *Sula dactylatra*, was seen on 18, 20, and 22 June 1992 (174-1992) at the Salinas R. mouth, MTY.

Photo by Stephen F. Bailey

Jun 1992 (GMcC; 138-1992). An adult, easily recognized by a deformity on its bill, returned to San Diego, SD, for its eleventh year, 14 Aug–13 Sep 1992 (JLD, PEL; 263-1992). See Heindel and Garrett (1995) and Patten and Erickson (1994) for a complete date span. An immature was at Bolsa Chica, ORA, 18 Oct 1992–3 Jan 1993 (SC, BED, MTH†, CM†, MAP, TG; 288-1992).

YELLOW-CROWNED NIGHT-HERON *Nyctanassa violacea* (16). The adult that has resided at La Jolla, SD, since 1981 was in La Jolla 11 Jan–25 Jul 1992 (GMcC; FH†, PEL; 84-1992). It attempted to nest with a Black-crowned Night-Heron (*Nycticorax nycticorax*) as it has done in past years.

BLACK-BELLIED WHISTLING-DUCK *Dendrocygna autumnalis* (9). One was at the south end of the Salton Sea, IMP, 6 Jul 1992 (WRR; 236-1992), and one was at the north end of the Salton Sea, RIV, 10 Jul 1992 (NDH; 226-1992). There was considerable discussion over whether these records pertained to the same individual; given the species' rarity, lumping these two records together might be justified. The birds were seen more than 30 miles apart, however, and there are enough records of Black-bellied Whistling-Ducks wandering north to justify acceptance of two individuals.

TRUMPETER SWAN *Cygnus buccinator* (20). Two were at White L., Lower Klamath NWR, SIS, 30 Nov 1991 (DR†; 210-1991). A family group of three were in Sierra Valley, PLU, 28 Feb 1992 (LJ; 91-1992). Records of this species have been scrutinized closely, because of the difficulty of distinguishing the Trumpeter from its more common congener, the Tundra Swan (*C. columbianus*). In both of these cases,

Figure 3. Although the detail is somewhat difficult to discern, the picture shows a smaller cormorant, with a long tail and white border to the throat. This Neotropic Cormorant, *Phalacrocorax olivaceus*, was photographed at Imperial Dam, IMP, 12 September 1992 (15-1993).

Photo by Jim Taylor

the birds were well described, including in the latter the sharply pointed "V" on the forehead, one of the best marks for separating adults. In addition, the diagnostic call, a low double "honk," was heard.

GARGANEY *Anas querquedula* (15). One of undetermined age/sex was in Mountain View, SCL, 22 Aug–22 Sep 1992 (PJM; WGB, GMcC, SEF, JM, MMR, SBT, JSh, AW†; 241-1992). This bird was generally regarded as a female by most observers, although the descriptions led some committee members to leave this question unresolved. Some of these age/sex determinations must always be left tentative. Jackson (1992) covered the identification of female and eclipse-plumage Garganeys well.

COMMON POCHARD *Aythya ferina* (1). An adult male returned to Silver Lakes, SBE, 14 Jan–8 Feb 1992 (CM; 106-1992) and again 26–29 Nov 1992 (MAP; GMcC; 287-1992). This bird was first seen 11–17 Feb 1989 but was missed the following winter. Its recurrence in subsequent years, including 18 Jan–23 Feb 1991, suggests the bird was probably somewhere in the area during the winter of 1989–1990. For full details, see Patten (1993).

KING EIDER *Somateria spectabilis* (32). A female was in Humboldt Bay, HUM, 6 Jan–1 Feb 1992 (BBA; FB, SWH, GSL; 109-1992). What was believed to be the same bird was in Humboldt Bay, HUM, *12* Nov 1992–30 Jan 1993 (SWH, GSL, JM, DR; 40-1993). The dates are consistent with most other records for California.

MISSISSIPPI KITE *Ictinia mississippiensis* (25). An immature collected at Goleta, SBA, 18 Jun 1933 (FM 156760; 58-1994) was the first for California (Willett 1933; see also Roberson 1993). One was at Furnace Creek Ranch, INY, 17 May 1992 (TH†; GMcC, MAP†; 131-1992). One was flying over the South Fork of the Kern R. near Weldon, KER, 5 Jun 1992 (JCS; 148-1992). One was in Norwalk, LA, 1 Jul 1992 (JSc; 175-1992). One was in Rancho Palos Verdes, LA, 26 Sep 1992 (JLA; 42-1993).

The four spring records were of subadults, like most Mississippi Kites reaching California. The Kern record was the first for that county. The Norwalk record was accompanied by extensive details and impressive sketches. The Rancho Palos Verdes record was exceptional in being for fall. The bird appeared to be a subadult retaining some juvenal secondaries and tail feathers; Wheeler and Clark (1995) discussed this plumage.

ZONE-TAILED HAWK *Buteo albonotatus* (32). An adult near the San Diego Wild Animal Park at San Pasqual, east of Escondido, SD, 12 Jan 1992 (CR; 126-1992) was judged to be a returning individual, seen previously in Escondido on 30 Dec 1989 and 4 Feb–10 Mar 1991 (Heindel and Garrett 1995). An adult was at L. Murray, San Diego, SD, 14 Dec 1992 (JiM; 78-1993). What was believed to be the same individual was in Santee, SD, 29 Jan–5 Feb 1993 (EA, JWo; 79-1993). The L. Murray and Santee records were thought to pertain to the same individual seen in this area in previous years (Heindel and Garrett 1995, Patten et al. 1995).

YELLOW RAIL *Coturnicops noveboracensis* (64). One was at Tomales Bay, MRN, 22 Nov 1992 (RS; 36-1993), during a high tide in an area that has yielded a few other recent records. A previously unreviewed specimen was located by Michel Gosselin, at the Canadian Museum of Nature in Ottawa, Canada. It had been taken at Pt. Reyes, MRN, 30 Oct 1905 (CMN 9065; 127-1994).

MONGOLIAN PLOVER *Charadrius mongolus* (5). A juvenile was at Moss Landing SB, MTY, 16–20 Sep 1992 (Figure 4; RC, JMD†, SEF, FG†, JML†, TDM, GMcC, JM, BDP, DR†, MMT†, SBT†; 250-1992), a photo appeared in *Am. Birds* 47:166. Many observers were careful to separate this species from the Greater Sand Plover (*C. leschenaultii*). Although there are no American records for the latter, it is

Figure 4. This juvenile Mongolian Plover, *Charadrius mongolus*, was at Moss Landing SB, MTY, 16–20 September 1992 (250-1992). The small bill, tarsus length, and overall size are key to distinguishing the Mongolian from the Greater Sand Plover, *C. leschenaultii*.

Photo by Monte Taylor

Figure 5. This juvenile Wilson's Plover, *Charadrius wilsonia*, one of two in this report, was photographed in Santa Barbara, SBA, 11 August 1992 (212-1992). The relatively massive bill separates Wilson's Plover from its more common relatives.

Photo by Shawneen Finnegan

a long-distance migrant. Some of the pictures seemed to show a long-legged bird that looked too big for the Mongolian (also called Lesser Sand Plover in the Old World). In addition, at least one photo showed the legs to be a paler greenish gray, a mark more typical of the Greater Sand. Other pictures (for example, Figure 4), however, showed a leg length and color, as well as overall size, typical of the Mongolian Plover. The small bill, in particular, eliminates the Greater Sand Plover.

WILSON'S PLOVER *Charadrius wilsonia* (7). A juvenile was in Santa Barbara, SBA, 11 Aug 1992, (Figure 5; FS; NBB, RC, KFC, SEF†, PEL, MAP; 212-1992). One was at Moss Landing SB, MTY, 15 Sep 1992– 1 Jan 1993 (DEG; RC, JLD, JRG†, EG†, JML†, GMcC, JM, CAM†, BDP, DR†, BS, SBT†, AW†, BW; 256-1992). These are the first records of this species in fall.

The Moss Landing bird was unique in its extended stay as well as in being the first for northern California. From the wear shown by many of the wing coverts, etc., many observers felt this bird was an adult. Others noted that some juvenal lesser coverts may have been retained, however, and because a southern shorebird may breed much earlier in the year than its arctic congeners, its plumage cycle may differ. We leave the age of this bird unresolved. See Marchant et al. (1986) for further discussion of age determination in Wilson's Plover.

EURASIAN DOTTEREL *Charadrius morinellus* (5). One was at Pt. Reyes, MRN, 17 Oct–21 Nov 1992 (LL; HG, PEL, GMcC, JM, BDP, MAP†; 272-1992). Again, the age of this bird was unclear. It was widely referred to as a juvenile, but some observers noted a feather pattern consistent with either an adult or a first-year bird in basic plumage. As suspected by some observers, the bird may have been molting from juvenal into first basic plumage.

Figure 6. This Little Stint, *Calidris minuta*, in Irvine, ORA, 25 July 1992 (205-1992), was the first adult to be accepted in fall. The orange face and throat, white chin, and breast pattern are all excellent marks for this species.

Photo by Herb Clarke

BAR-TAILED GODWIT *Limosa lapponica* (14). A juvenile was at Pt. Reyes, MRN, *20* Aug–24 Sep 1992 (RS†; EG†, JM, BDP, MAP, JWr; 231-1992). Another was in Bodega Harbor, SON, 26 Oct 1992 (GHF; DN†; 278-1992). Both birds showed the characteristics of *baueri*, the expected race of this vagrant to our area. The one at Bodega was particularly worn, as might be expected on this date.

LITTLE STINT *Calidris minuta* (5). An adult was in Irvine, ORA, 25–28 Jul 1992 (Figure 6; HC†, BED, JRG†, DK†, MH†, GMcC, MAP; 205-1992), constituting the first accepted record of a fall adult for California. This bird was in bright alternate plumage, showing substantial orange in the face and throat but a white chin, as is typical of this species. The streaks did not quite meet at the center of the breast, and the tertials were quite dark with rufous edges, all excellent marks for distinguishing this species from the Rufous-necked Stint (*C. ruficollis*).

WHITE-RUMPED SANDPIPER *Calidris fuscicollis* (12). An alternate-plumaged bird was near the Wister Unit, Imperial Wildlife Area, south end of the Salton Sea, IMP, 30–31 May 1992 (MAP†; GMcC; 137-1992). This is the ninth spring record, with the others falling between 17 May and 16 June.

LITTLE GULL *Larus minutus* (46). An adult frequented the Santa Maria–Oso Flaco Lake area, SBA/SLO, *23* Mar–22 May 1992 (JMC; TME, DWQ†, JSR; 111-1992). A first-summer bird was at the north end of the Salton Sea, RIV, 10 May–4 Jul 1992 (GMcC; MAP;123-1992). A first-year bird at Playa del Rey, LA, 21 Mar 1992 (MH; 185-1992) was judged to be the same individual seen in San Pedro, LA, *26* Apr–1 May 1992 (MH†; NBB, KLG; 186-1992).

COMMON BLACK-HEADED GULL *Larus ridibundus* (15). A first-winter bird was in Santa Barbara, SBA, 21 Nov–21 Dec 1992 (SEF†; DD†, PEL, CM†, GMcC, AS†; 292-1992). On this individual, the pale base of the bill, usually obvious on a Black-headed Gull, was not always evident even with binoculars. Similarly, the underwing pattern, with the diagnostic dusky inner primaries contrasting with the two outer white primaries, was less easily visible than in most individuals of this species.

BLACK-TAILED GULL *Larus crassirostris* (1). An adult was collected on San Diego Bay, SD, 28 Nov 1954 (UMMZ 136176; 143-1977) and published by Monroe (1955). In its 3rd report (Luther et al. 1979), and again in its 9th (Roberson 1986), the CBRC rejected this record, questioning whether the occurrence was natural. There were also two votes to reject on the basis of identification, as the evidence supporting that identification was not circulated. Stephen F. Bailey analyzed the specimen (thanks to Robert W. Storer and C. Sims of the University of Michigan Museum of Zoology) and supplied photographs which established its identity beyond question.

The argument against this bird's natural occurrence is based on the concept that the Black-tailed Gull is generally restricted to coastal areas, without an extensive pattern of vagrancy. Since the species occurs in Korea, and the specimen was collected shortly after the Korean War, near a naval shipyard, the probability that the bird reached San Diego on a ship seemed higher than a unique instance of vagrancy. Over the past 10 years, however, knowledge of the Black-tailed Gull's distribution has increased, and a pattern has emerged, with records of vagrants from Australia and Thailand. Closer to California, there are now at least seven records from Alaska, one from Manitoba, and one from Maryland. Among these is a bird photographed at Ketchikan, Alaska, 22 Aug–8 Oct 1992 (*Am. Birds* 47:166). In fall, where would this bird be going? Movement south from Alaska may account for a west-coast record. Whether Alaska records suggest a pattern relevant to California is debatable, but they certainly do not hurt the argument that the species could reach this state naturally. As we go to press, a number of Black-tailed Gulls have been reported in 1995, from Alaska and the Atlantic states.

Figure 7. This Fork-tailed Flycatcher, *Tyrannus savana*, photographed 4 September 1992 (240-1992) in Bridgehaven, SON, was the first confirmed in California.

Photo by Nancy T. Conzett

Figure 8. For many species typical of the southeastern U.S., 1992 was a memorable year, but at 36 the number of Kentucky Warblers, *Oporornis formosus*, is one of the more impressive tallies. This bird, one of eleven found in the area, was in the upper Santa Ynez R. drainage, SBA, 29 May 1992 (200-1992).

Photo by James M. Greaves

Figure 9. A Red-faced Warbler, *Cardellina rubrifrons*, was at SE Farallon I., SF, 25 August 1992 (253-1992). Both the date and location are unprecedented.

Photo by Peter Pyle

Figure 10. This Field Sparrow, *Spizella pusilla*, photographed 16 October 1992 (271-1992) at Furnace Creek Ranch, INY, shows the small pink bill and eye ring expected of this species. The rather pale underparts indicate the western subspecies, *S. p. arenacea*.

Photo by Jon L. Dunn

THICK-BILLED MURRE *Uria lomvia* (27). One was on Humboldt Bay, HUM, 16 Dec 1992 (DF; BBA, TL; 26-1993). The description was quite complete, mentioning the dark head and neck, typical of this species at this season. In addition, the pattern of white extending up into the neck in a "V" (rather than in a rounder "U" shape, as in the Common Murre, *U. aalge*) was noted, as was the thicker, more heavily curved culmen. The white tomium stripe was not seen, but it may be faint or absent on the Thick-billed.

PARAKEET AUKLET *Cylorrhynchus psittacula* (42). One was seen about 140 n. miles SW of San Nicolas I., SBA, 1 Feb 1992 (PP; 74-1992). Five were seen approximately 193 n. miles west of San Miguel I., SBA, 10 Feb 1992 (PP; 75-1992). A specimen found dead at the mouth of San Simeon Creek, SLO, 6 Feb 1955, is in the Royal Ontario Museum in Toronto (ROM 81724; 70-1994). This record, published by Munro (1957), was on List A of the appendix of the CBRC's 14th report (Roberson 1993), of records based on specimens believed lost. We thank Stephen F. Bailey for obtaining this skin for our evaluation.

RUDDY GROUND-DOVE *Columbina talpacoti* (53). A male wintered in Ridgecrest, KER, 5 Feb–4 Apr 1992 (DVB, MOC†;127-1992). Three birds at Furnace Creek Ranch, INY, 17 May–21 Jul 1992 (GMcC, MAP; 132-1992) were judged to be the same three that spent the previous winter there (Patten et al. 1995). Sorting out the occasional fall "explosions" of this species at Furnace Creek Ranch is often difficult. For the fall of 1992, up to 10 were accepted from 12 Sep 1992 to 4 Jun 1993 (JLD†, SEF†, JH, TH, PEL, GMcC, MAP; 257-1992). A male was at Iron Mountain Pumping Plant, SBE, 9–16 Oct 1992 (GMcC; MAP; 262-1992). Another male was in the Tijuana R. valley, SD, 23 Oct 1992 (EDG; 17-1993).

GROOVE-BILLED ANI *Crotophaga sulcirostris* (8). One was along the Colorado R. 14 miles north of Blythe, RIV, 30 Sep–8 Oct 1992 (SCI†; SFB, SEF, JLD, GMcC, MAP†, DR†; 261-1992). Another in Baker, SBE, 22–23 Oct 1992 (PEL; SEF†, SJM†; 291-1992) was the first for San Bernardino County. Another was near Desert Center, RIV, 23 Oct 1992 (TB; 18-1993). One at El Monte and Pico Rivera, LA, 9 Nov–30 Dec 1992 (SC, BED, KLG, CM; 302-1992) was the first for Los Angeles County.

This remarkable influx doubles the number of previous records for the state. P. Pyle (in comments) noted that the grooves in the bill get deeper and more extensive with age. In the photographs 2–4 shallow grooves are visible, indicating young birds. The description of the individual in Los Angeles County, mentioning contrasting brown and black feathers, also specifies an immature.

BROAD-BILLED HUMMINGBIRD *Cynanthus latirostris* (36). A first-year male was in Lone Pine, INY, 12–14 Sep 1992 (MI; JH, TH†; 299-1992). This is the first record for Inyo County. Irwin, who was camping, had set out a feeder attracting various hummingbirds, including this bird. Although the date is consistent with the pattern of fall arrivals, the location is not, as this species is scarce in the interior and, particularly, so far north.

VIOLET-CROWNED HUMMINGBIRD *Amazilia violiceps* (3). One was at Kenwood, SON, *26–29* Mar 1992 (SFB, RC, JM, DN†, BDP, DR†; 110-1992). The early date was some cause for concern, but the species is typically on the move in Arizona at the time. Furthermore, the likelihood of escaped hummingbirds was not felt to be high.

GREATER PEWEE *Contopus pertinax* (29). One was in the Tijuana R. valley, SD, 19 Dec 1992–3 Jan 1993 (GMcC; 4-1993). This record fits a well-established pattern of late-fall and winter records of this species in coastal southern California.

ALDER FLYCATCHER *Empidonax alnorum* (2). A singing individual at Butterbredt Springs, KER, 30 May 1992 (MTH; DVB, MOC; 149-1992) followed California's first record, also of a singing bird, by only one year (Patten et al. 1995). Unlike the first record, which was documented with voice recordings and sonograms, this record included only written transcriptions of the song (and plumage descriptions), so it met with some initial resistance. However, the descriptions of the song were convincing, and the song was compared to that of nearby singing Willow Flycatchers (*E. traillii*). The plumage characters (e.g., a thin eye ring) were consistent with the Alder Flycatcher (although probably within the range of some Willows).

DUSKY-CAPPED FLYCATCHER *Myiarchus tuberculifer* (28). Nine were found along the central and southern coast: along the Santa Ynez R. near Lompoc, SBA, 31 Jan–9 Feb 1992 (MAH; SEF†, PEL; 85-1992), at California State University at Dominguez Hills, Carson, LA, 4–6 Nov 1992 (BED, KLG; 305-1992), at the Big Sur R. mouth, MTY, 21 Nov–15 Dec 1992 (JND, CH; RC, DR†, RFT; 308-1992), at Natural Bridge SP, SCZ, 21 Nov 1992–10 Jan 1993 (EL, JM, DLS; 314-1992), at Pine Gulch Creek, Bolinas Lagoon, MRN, 7–11 Dec 1992 (RS; PP†; 34-1993), at San Marino, LA, 13–19 Dec 1992 (KLG†; EM; 47-1993), at Pacific Grove, MTY, 23 Dec 1992–11 Jan 1993 (DR†; RC, SBT†, BJW; 313-1992), another at Pacific Grove, MTY, 29 Dec 1992–3 Jan 1993 (DS; RC, DR†, JSo†, SBT† , BJW; 5-1993), and at Goleta, SBA, 29 Dec 1992–2 Mar 1993 (SEF†; PEL, CAM, GMcC; 6-1993). A color photograph of one of the birds at Pacific Grove appeared in *Am. Birds* 47:321. All these records, in late fall and winter, fit the established pattern for the species, but the appearance of eight in one season (the fall and early winter of 1992) was unprecedented.

It was impossible to determine the age of many of these individuals, but those at Bolinas Lagoon and Goleta, retaining juvenal rectrices, appeared to be in their first winter (P. Pyle in comments). Although this rectrix retention is not well understood or documented, it seems to explain the presence of rufous margins to the base of the outer rectrices, a feature that adults lack (Pyle et al. 1987).

GREAT CRESTED FLYCATCHER *Myiarchus crinitus* (37). One at Wilmington, LA, 31 Oct–2 Nov 1990 (MH†; JKA†, KLG; 215-1990) stirred a lively debate, as the possibility of Brown-crested Flycatcher (*M. tyrannulus*) was strongly considered by some members. Much of the debate centered on several poor photographs taken in harsh lighting, so that the throat and breast of the bird looked paler gray than in life (K. L. Garrett in comments). Another point raised dealt with the description of the tertials (the three innermost secondaries). The innermost tertial of the Great Crested Flycatcher often shows a diagnostic pattern of a whitish fringe wide at the feather base and tapering to a point toward the tip. The Brown-crested Flycatcher, by contrast, shows a narrower whitish fringe of fairly equal width throughout the feather. However, independent examinations of specimens by Garrett (LACM), Heindel (LSUMZ), McCaskie (SDNHM), and Patten (LACM, WFVZ) led to the conclusion that whereas the Brown-crested apparently never shows a tapered fringe, the Great Crested can have tertial fringes of fairly uniform width. After four full circulations, and discussions at two different annual meetings, the record was eventually accepted on the strength of a thorough written description and sketch by Garrett. The documentation included mention of olive on the back and sides of the breast, a feature lacking on even fresh Brown-crested Flycatchers of the northwestern (and expected) subspecies *M. t. magister*, although potentially present on more southerly subspecies.

Less controversial was a first-fall bird near the Santa Maria R. mouth, SBA, 4 Oct 1992 (JMC, DWQ†; 265-1992), as it fit the seasonal pattern slightly better and the single photograph, though also poor, shows a bird with a dark gray breast.

THICK-BILLED KINGBIRD *Tyrannus crassirostris* (10). An adult at Seal Beach, ORA, 9 Oct 1992–20 Mar 1993 (TLW; GMcC, SBT; 7-1993) had returned for its

second winter at this location. It was also present 29 Oct 1991–14 Mar 1992 (Patten et al. 1995).

SCISSOR-TAILED FLYCATCHER *Tyrannus forficatus* (83). Single individuals were at Laguna Beach, ORA, 17–25 Mar 1992 (JEP; 37-1993) and at Ft. Dick, DN, 12 May 1992 (ADB†; 60-1993). A male was at Furnace Creek Ranch, INY, 24 May 1992 (GMcC; MAP†, SBT†; 136-1992). Individuals were found at the Cactus City Rest Area along Interstate 10, 10 miles NE of Mecca, RIV, 25 May 1992 (JBo; 217-1992) and Olema, MRN, 28–30 Jun 1992 (SPJ; LL†; 228-1992). An adult, probably a female, was at China L. NWC, KER, 7 Aug 1992 (DVB; 20-1993). A probable female was at Cerro Noroeste, KER, 6 Sep 1992 (R&DS; 21-1993). One was near the Big Sur R. mouth, MTY, 16–19 Oct 1992 (SFB, RC, DR; 273-1992). An immature was at San Dieguito Co. Park, SD, 4 Dec 1992 (PAG; 76-1993). An immature female was in El Monte, LA, 6 Dec 1992–9 Jan 1993 (JG; KLG, CAM, MSM; 48-1993). An adult female/immature male was in Goleta, SBA, 11 Dec 1992–5 Mar 1993 (DD†, PEL†, CAM†, GMcC; 8-1993); a photograph was published in *Am. Birds* 47:301. This species has become one of the more "routine" rarities reviewed by the Committee, with records spanning all seasons.

FORK-TAILED FLYCATCHER *Tyrannus savana* (1). A first-fall bird was at Bridgehaven, SON, 4–8 Sep 1992 (Figure 7; SFB†, WGB, RC, NTC†, SEF†, FG†, EDG†, CHK, THK, JML, LL, CAM†, GMcC, JM, DWN†, BDP, MAP†, DEQ, DR†, MMR, RS†, BvS†, SBT†; 240-1992). A color photograph was published on the cover of vol. 25, no. 3 of *Western Birds*, and a black-and-white print appeared in *Am. Birds* 47:146. Although the subspecies could not be positively determined without a specimen and comparison with a series, the bird appeared to be of the nominate subspecies, the one apparently accounting for most records for the United States and Canada (McCaskie and Patten 1994). This record is one of only three confirmed for western North America, the others being from Alberta 1 Jun 1988 (Wedgwood 1988) and Idaho 25 Aug–7 Sep 1991 (Trost 1991). There is, however, a report from Santa Monica, LA, in "late summer" 1883 (Toppan 1884). The alleged specimen supporting this record cannot be found, and the record was questioned by Grinnell (1915); it has not been considered by the CBRC. See Monroe and Barron (1980) and McCaskie and Patten (1994) for summaries of this species' status and distribution in the United States and Canada, and the latter for information on subspecies and age determination.

NORTHERN WHEATEAR *Oenanthe oenanthe* (5). One of unknown age/sex (but possibly an adult male from its sharply defined black mask and uniform tawny coloration) was at SE Farallon I., SF, 26 Sep 1992 (PP; 293-1992), the site of two previous records. Aside from the first California record, of a bird taken at SE Farallon I., 11 Jun 1971 (Manuwal and Lewis 1972, Dunn 1988; CAS 68566), all California records have been in fall between mid-September and mid-November.

GRAY-CHEEKED THRUSH *Catharus minimus* (15). One was at Pt. Reyes NS (fish docks), MRN, 13–15 Oct 1992 (RS; JM; 312-1992). The descriptions appeared to eliminate the possibility of Bicknell's Thrush, *C. bicknelli* (Ouellet 1993), a species unrecorded (and unlikely) in California. See McLaren (1995) and Curson (1994) for some sobering identification problems with this species-pair. This record fits the Gray-cheeked Thrush's pattern of occurrence in California: 13 of the 15 records fall between 12 September and 31 October (the other two are for spring).

WOOD THRUSH *Hylocichla mustelina* (10). A singing male was at Dechambeau Creek, Mono L., MNO, 2–7 Jun 1992 (DP§; DWS; 220-1992). One banded and photographed in hand at Palomarin, MRN, 18–19 Jun 1977 (Luther 1980) constitutes the only previously accepted spring record for California.

RUFOUS-BACKED ROBIN *Turdus rufopalliatus* (7). An apparent female was at Snow Creek Village, RIV, 1–20 Mar 1992 (TJG; KLG, GMcC, MAP, TLW; 78-1992). Aside from two birds in Newport Beach, ORA, during the winter of 1982/1983 (Roberson 1986), all Rufous-backed Robins in California, like this one, have been found in the desert in the southeastern portion of the state.

GRAY CATBIRD *Dumetella carolinensis* (65). One collected on SE Farallon I., SF, 4 Sep 1884 (USNM 100202; 51-1994) was the first for California (Townsend 1885). Single individuals were at Pt. Reyes NS (lighthouse), MRN, 25 Jun 1992 (RS†; WS†; 29-1993), at Huntington Beach, ORA, 12–31 Oct 1992 (JEP; JRG†, SRG, MAP; 266-1992), and at Orick, HUM, 12 Dec 1992–31 Jan 1993 (GSL†, DR; 41-1993). A photograph of the Huntington Beach bird appeared in *Am. Birds* 47:149, and a photograph of the Orick bird was published in *Am. Birds* 47:298.

CURVE-BILLED THRASHER *Toxostoma curvirostre* (14). One showing the characters of the western subspecies *T. c. palmeri* was along the Colorado R. at Sue Clark's ranch 14 mi. north of Blythe, RIV, 8–22 Oct 1992 (SFB, JLD†, SEF†, CAM, GMcC, MAP†, DR†; 260-1992). It represents the first acceptable record for California outside of Imperial County, although given the habitat in the lower Colorado River Valley and the seven Colorado River records for Imperial County, it was hardly unexpected.

YELLOW WAGTAIL *Motacilla flava* (10). A first-fall bird, probably a female, was at San Joaquin Marsh, ORA, 19–20 Sep 1992 (BED, MTH†, MAP†; 246-1992). As noted by Patten et al. (1995), all California records of this species fall in the narrow window of 4 to 21 September, and all are from coastal locations. This record, however, was only the second for southern California, following a bird photographed at Malibu Lagoon, LA, 6 Sep 1987 (Pyle and McCaskie 1992).

WHITE-EYED VIREO *Vireo griseus* (27). A remarkable total of eleven individuals was found during the spring and summer of 1992, almost doubling the number of California records. This unprecedented invasion took place simultaneously with that of the Yellow-throated Vireo (*V. flavifrons*; 9 birds; see below), Northern Parula (*Parula americana*; 138 birds), Yellow-throated Warbler (*Dendroica dominica*; 6 birds; see below), Worm-eating Warbler (*Helmitheros vermivorus*; 8 birds; see below), Kentucky Warbler (*Oporornis formosus*; 36 birds; see below), and Hooded Warbler (*Wilsonia citrina*; 76 birds). This massive incursion of species breeding predominantly in the southeastern United States was discussed by Terrill et al. (1992); more complete details will be published elsewhere.

Spring and summer records: Singing males at Upper Newport Bay, ORA, 10 May 1992 (JEP, DRW; 81-1993), Butterbredt Springs, KER, 14–17 May 1992 (MTH; 150-1992), South Fork Kern R. Preserve, KER, 24–27 May 1992 (MDH; 18-1994), Wilmington, LA, 25 May 1992 (MH†; NBB; 179-1992), Deep Springs, INY, 31 May 1992 (JH, TH; 187-1992), upper Arrastre Creek, San Bernardino Mts., SBE, 23–24 Jun 1992 (GH§; 237-1992), San Juan Capistrano, ORA, 26–28 Jun 1992 (BED; GMcC; 188-1992), China Ranch, near Tecopa, INY, 9–11 Jul 1992 (JT§; 207-1992), along the Santa Margarita R. near the confluence of De Luz Creek on Camp Pendleton, SD, 12–17 Jul 1992 (PAG; GMcC; 189-1992), and at Mono L., MNO, 13–14 Aug 1992 (ES†; 286-1992).

An immature was at Pt. Loma, SD, 25 Oct 1992 (PAG; GMcC; 279-1992), and one of unknown age and sex was measured and banded at SE Farallon I., SF, 28 Oct 1992 (PP†; 297-1992).

YELLOW-THROATED VIREO *Vireo flavifrons* (49). Nine were located during the spring and summer of 1992, giving California its largest incursion on record. Single individuals were at Anaheim, ORA, 9 May 1992 (DPu; 238-1992), Redondo Beach,

LA, 9–10 May 1992 (JKA†; 91-1993), Pt. Reyes NS (fish docks), MRN, 16 May 1992 (RS; SC, LL; 182-1992), and Pt. Loma, SD, 17 May 1992 (GLR; 190-1992). Singing males were at Ogilvy Ranch along Mono Creek, SBA, 23 May 1992 (JMG†; 173-1992), at Huntington Beach, ORA, 28–30 May 1992 (JEP; 38-1993), at Descanso Gardens, La Cañada–Flintridge, LA, 9 Jun–9 Jul 1992 (RAE; KLG; 146-1992), and at Centerville Beach, HUM, 25 Jun 1992 (BBA†; GSL; 224-1992). One at Mono Creek Campground, SBA, 26 Jun–1 Jul 1992 (HR; SEF; 211-1992) was judged to be an individual different from the bird at Ogilvy Ranch, a location 6 km (4 mi) upstream. A fall vagrant was at Stinson Beach, MRN, 11–18 Oct 1992 (KH, JM, BDP, SBT; 275-1992).

PHILADELPHIA VIREO *Vireo philadelphicus* (85). One was at Galileo Hill Park, KER, 10 Oct 1992 (AS; JLD; 280-1992). One at Goleta, SBA, 14 Feb–17 Mar 1992 (SEF†; DD†, PEL, GMcC; 87-1992) was perhaps the first to winter anywhere in the United States; a color photograph of it was published in *Am. Birds* 46:333. It was certainly the first to winter unequivocally because two previous winter-season individuals in California, at Harbor L., LA, 30 Dec 1978–12 Jan 1979 (Luther et al. 1983) and Huntington Beach, ORA, 26 Nov 1982–1 Jan 1983 (Morlan 1985), appeared to be attempting to winter, but may also have been lingering fall vagrants.

YELLOW-GREEN VIREO *Vireo flavoviridis* (33). An immature was at SE Farallon I., SF, 30 Sep 1992 (JK, PP†; 294-1992). Aside from a bird collected at Harper Dry L., SBE, 2 Oct 1988 (Patten and Erickson 1994; SBCM 52625), all California records have been for the coast between 8 September and 30 October.

BLUE-WINGED WARBLER *Vermivora pinus* (15). An apparent female was at Mojave, KER, 22 May 1992 (DVB; MTH, SBT; 151-1992), a male was at SE Farallon I., SF, 24–25 May 1992 (PP; 163-1992), and a probable male was at Pt. Reyes NS (lighthouse), MRN, 19 Sep 1992 (SC, BDP; 248-1992). This species tends to be recorded slightly more frequently in spring than in fall.

GOLDEN-WINGED WARBLER *Vermivora chrysoptera* (48). A female in Alpers Canyon, MNO, 15 Jul 1992 (DWS; 221-1992) was remarkable for its date and perhaps was summering, although it may have been a late spring vagrant. A male was at El Capitan SB, SBA, 19–20 Sep 1992 (RH†, PEL†; 264-1992), and a female was at Stinson Beach, MRN, 10–12 Oct 1992 (KH; JM, SBT; 311-1992). A male at Whiting Ranch Regional Park, ORA, 19 Feb–14 Mar 1992 (MTH, GMcC; 108-1992) was the first to winter in California, although there are two prior December records of likely late-fall vagrants: a male found dead in Claremont, LA, 18 Dec 1972 (Patten and Erickson 1994) and a female in the Tijuana R. valley, SD, 15 Dec 1990 (Heindel and Garrett 1995).

YELLOW-THROATED WARBLER *Dendroica dominica* (70). A singing male was near Lopez Pt., MTY, 24 May 1992 (SFB; 147-1992). A singing male at Pt. Loma, SD, 8–10 May 1992 (GMcC; 122-1992), a probable female at Pt. Reyes NS (Mendoza Ranch), MRN, 30–31 May 1992 (RS†; JM, SBT; 159-1992), one at Pt. Reyes NS (Nunes Ranch), MRN, 2–3 Jun 1992 (JM; 230-1992), a singing male at Arcata, HUM, 3 Jul 1992 (FB; BBA†, GSL; 225-1992), and a male at Pt. Reyes NS (Mendoza), MRN, 18 Sep 1992 (RS†; 44-1993) all showed the characters of the subspecies *D. d. albilora*, the race that accounts for the vast majority of California records. The six records in spring/summer of 1992 tied the previous high for that season, as that number was reached in both 1981 and 1982 (Binford 1985, Morlan 1985, Roberson 1986, Dunn 1988, Bevier 1990, Langham 1991).

GRACE'S WARBLER *Dendroica graciae* (28). A singing male was at Clark Mt., SBE, 23 May 1992 (RJR; 141-1992). Only one of two singing males claimed was accepted; see Roberson (1993) for a discussion of this issue. Males of this species have

been recorded on Clark Mountain in 1977 (Luther 1980), 1981 (Roberson 1993), and 1986 (Bevier 1990); reports from additional years (e.g., Johnson 1995) have either not been reviewed or not been accepted by the CBRC (see Roberson 1993).

PINE WARBLER *Dendroica pinus* (48). An immature male was at Pt. Loma, SD, 6 Jan–12 Apr 1992 (PAG, GMcC, MAP†; 30-1992). An immature male at Furnace Creek Ranch, INY, 21 Oct 1992 (JLD, CAM; SEF†, TH, PEL, GMcC; 281-1992) provided only the second interior fall record for California, the first being of a female collected near Westmorland, IMP, 13 Oct 1991 (Patten et al. 1995; SDNHM 47864). A male at Pt. Loma, SD, 25 Oct–10 Nov 1992 (GMcC; 306-1992) was judged to be probably different from the male present the previous winter (record 30-1992 above). The frequency of California records continues to increase at an impressive rate; see Patten and Erickson (1994) for a discussion.

CERULEAN WARBLER *Dendroica cerulea* (13). A singing male was at Pt. Loma, SD, 6 Jun 1992 (REW; 191-1992). This species remains very scarce in California in comparison to many other wood-warblers primarily of eastern North America. Only three were recorded in spring prior to this bird: a female at Oasis, MNO, 27 May 1974 (Luther et al. 1979), a female at Pt. Loma, SD, 26–27 May 1979 (Luther et al. 1983), and a male at California City, KER, 17 May 1985 (Dunn 1988).

WORM-EATING WARBLER *Helmitheros vermivorus* (68). Single individuals were at Huntington Beach, ORA, 7 May 1992 (DP; 239-1992) and SE Farallon I., SF, 7 May 1992 (PRBO; 164-1992). A singing male was along Baker Creek near Big Pine, INY, 19 May 1992 (JH, TH†; 193-1992). A female was at Butterbredt Springs, KER, 24 May 1992 (HB, MOC, MTH; 142-1992). A singing male was at Pt. Reyes NS (fish docks), MRN, 31 May–2 Jun 1992 (JM; 183-1992). A first-spring bird was at SE Farallon I., SF, 6–7 Jun 1992 (PP†; 165-1992). One measured and banded at Coyote Creek Riparian Station, SCL, 17 Jun–6 Sep 1992 (KS†, SBT; 69-1993) was the first certain to have oversummered in California. One was at Montaña de Oro SP, SLO, 28 Jun 1992 (BSc; 222-1992). The eight individuals found during the spring and summer of 1992 made easily California's largest influx of Worm-eating Warblers on record.

LOUISIANA WATERTHRUSH *Seiurus motacilla* (6). A singing male was at Huntington Beach, ORA, 3–6 May 1992 (BED; RAE, MTH†, MH†, GMcC, MAP; 119-1992); a photograph of it was published in *Am. Birds* 46:482. California had but one record until the mid-1980s, but five have accumulated since that time.

*KENTUCKY WARBLER *Oporornis formosus* (101). Although Kentucky Warblers have made impressive showings in other recent springs and summers, such as 8 in 1985 (Dunn 1988, Bevier 1990, Roberson 1993) and 13 in 1987 (Langham 1991, Roberson 1993), the 36 found in spring and summer of 1992 were astounding, representing a number 10 times that of the most recent 10-year average for the season (Terrill et al. 1992). This year also furnished the first definite summering records for the species, although breeding was never proven.

Southeast Farallon Island, SF, has hosted more Kentucky Warblers (21 accepted records prior to this report) than any other location in California. Six more were added to its tally in 1992: an adult male 4–25 May (PP†; 166-1992), a first-spring female 14–15 May (PRBO; 167-1992), a first-spring male 15–16 May (PRBO, WJS†; 168-1992), a first-spring female 16 May (PRBO, WJS†; 169-1992), an adult female 1–2 Jun (PP†; 170-1992), and a first-spring female 6–7 Jun (PP†; 171-1992).

On the heels of Southeast Farallon Island for Kentucky Warbler records is Kern County, which yielded eight in spring 1992: a female at Galileo Hill Park, 9–10 May (V&AH; MTH, SBT; 152-1992), one at California City, 20 May (RAE; 145-1992), a singing male at the South Fork Kern R. Preserve, 22 May (MBS†; 195-1992), a singing male at Butterbredt Springs, 24 May (JMC; MTH; 196-1992), one of

unknown age/sex at Butterbredt Springs, 26 May (SBT; 232-1992), another singing male at Butterbredt Springs, 31 May (RC, MTH, DRo; 140-1992), a singing male at Mojave, 4 Jun (MTH; 153-1992), and one of unknown age/sex at Butterbredt Springs 6–7 Jun (MOC; 197-1992).

A singing male was at Los Osos, SLO, 9 May 1992 (JSR; 194-1992). A male struck a window in Petaluma, SON, 15–16 May 1992 (CN†, DWN†; 62-1993). Singing males were at Carpinteria Creek, SBA, 16 May 1992 (BBA; SEF, PEL; 156-1992), at Donner Pass, NEV, 24 May–27 Jun 1992 (LJE†; 161-1992), at Furnace Creek Ranch, Death Valley NP, INY, 25 May 1992 (RST; EH; 154-1992), at Wildrose Canyon, Glass Mtn., MNO, 31 May 1992 (PJM; 63-1993), at Mountain Home Village, SBE, 5–15 Jun 1992 (JDG§; RJH; 267-1992), in Noble Canyon 2.5 miles north of Pine Valley, SD, 8 Jun 1992 (BC; 198-1992), at Blue Jay in the San Bernardino Mts., SBE, 12 Jun 1992 (DG; 25-1993), and at Pacific Grove, MTY, 14–21 Jun 1992 (SFB; RC, DR§, JSo†; 157-1992). A female was along Sandia Creek near Fallbrook, SD, 19–20 Jun 1992 (GMcC; 201-1992).

An amazing total of eleven (and perhaps more) individuals was found in the upper Santa Ynez River drainage, SBA, between 24 May and 11 Aug 1992. Many of these birds were banded and photographed in hand, and the efforts of James M. Greaves were essential in getting a handle on the number of individuals present. Specific records are as follows: one was along Cameusa Creek near Gibraltar Reservoir, 24 May (JMG†; 200-1992). Three males were found near P-Bar Campground, 28–29 May (Figure 8; JMG†; 200-1992); a color photograph of one was published in *Am. Birds* 46:501. Three were at Juncal Campground, 10 Jun–11 Aug (JMG†; SEF, PEL, CAM; 200-1992). One was at Mono Adobe along Mono Creek, 11 Jun (JMG†; 200-1992). Two were at P-Bar Campground, 15 Jun–3 Aug (JMG†; PEL, CAM; 200-1992). One was at Mono Creek Campground, 22 Jun (JMG†; 200-1992). Voice recordings of one or two singing males at Juncal Campground on 18 Jun 1992 (CAM§) and of one singing male at P-Bar Campground on 18 Jun 1992 (CAM§) were deposited at the Library of Natural Sounds, Cornell University, Ithaca, New York.

After the massive showing in spring and summer of 1992, only two appeared in fall: at Gaviota SP, SBA, 3 Sep 1992 (BH; 290-1992) and at Galileo Hill Park, KER, 25 Oct 1992 (HB‡; 276-1992).

Records of this species are no longer reviewed.

CONNECTICUT WARBLER *Oporornis agilis* (68). An immature was at SE Farallon I., SF, 18 Sep 1992 (JK‡; 9-1993). Another immature, probably a female, was at Bodega Harbor, SON, 3–4 Oct 1992 (RAR; DRM†, JM, DWN†, BDP; 269-1992). Only one observed 22 Oct 1978 at Santa Cruz, SCZ (Luther et al. 1983) was later in fall than one at SE Farallon I., SF, 18 Oct 1992 (PP†; 296-1992). As in previous years, Southeast Farallon Island remains the primary location in California for this species.

MOURNING WARBLER *Oporornis philadelphia* (84). A female was at Mojave, KER, 22 May 1992 (MTH; 155-1992), an immature male was at SE Farallon I., SF, 30–31 Aug 1992 (PP†; 252-1992), a probable immature male was at Pt. Reyes NS (Fish Docks), MRN, 20 Sep 1992 (GMcC; SEF; 255-1992), and an immature, probably a female, was at Furnace Creek Ranch, INY, 5 Oct 1992 (JLD, GMcC; 270-1992). Only 12 of California's prior 80 Mourning Warblers occurred in spring, so the Mojave bird was noteworthy in that regard. The bird at Furnace Creek Ranch was only the second found in the interior in fall, following one collected at Baker, SBE, 10 Nov 1979 (Roberson 1993; SBCM 30529).

RED-FACED WARBLER *Cardellina rubrifrons* (9). An immature, probably a male, at SE Farallon I., SF, 25 Aug 1992 (Figure 9; PP†; 253-1992) provided the first record for northern California; a photograph appeared in *Am. Birds* 47:147.

SCARLET TANAGER *Piranga olivacea* (83). A female was at Pt. Loma, SD, 24 Oct 1992 (CGE; TC; 23-1993). An immature male at Oceano Campground, Pismo SB, SLO, 27 Nov–7 Dec 1992 (JMC; TME, KAH, CAM; 303-1992) was quite late, the only later record being of one at San Luis Obispo, SLO, 27 Nov–13 Dec 1976 (Luther et al. 1979).

PAINTED BUNTING *Passerina ciris* (41). One was at Goleta, SBA, 2 Sep 1992 (SEF†; 289-1992), and first-fall birds were at SE Farallon I., SF, 5 Oct 1992 (PP†; 295-1992) and Mojave, KER, 6–7 Oct 1992 (GH; MOC, JLD; 282-1992). Virtually all accepted California records are of fall birds in female or immature "supplemental" plumage; all three of these birds fit that pattern well.

FIELD SPARROW *Spizella pusilla* (3). One at Furnace Creek Ranch, INY, 16–17 Oct 1992 (Figure 10; JLD†; TH†, GMcC, MAP; 271-1992) appeared to be of the western subspecies *S. p. arenacea*. The only previous records were of a bird banded and photographed in hand at SE Farallon I., SF, 17 Jun–9 Jul 1969 (Robert 1971, Roberson 1986) and one photographed at Irvine Regional Park, ORA, 25 Nov 1989–6 Jan 1990 (Patten and Erickson 1994).

LE CONTE'S SPARROW *Ammodramus leconteii* (24). A juvenile was at SE Farallon I., SF, 18–19 Sep 1992 (JK†; 10-1993). One at Malibu Creek SP, LA, 20 Dec 1992–17 Jan 1993 (SH, KLG†; JBr, JLD, CAM†, GMcC, JM, SS, SBT; 11-1993), the first for Los Angeles County, was only the third to winter in California, following others at China L., KER, 27 Nov 1988-2 Jan 1989 and along the Smith River near Ft. Dick, DN, 5 Jan-11 Feb 1989 (Pyle and McCaskie 1992). The bird on Southeast Farallon Island was more typical, as aside from the three winter records and two spring records (Luther 1980, Binford 1985), all Le Conte's Sparrows in California have occurred in fall between 11 September and 16 November.

SNOW BUNTING *Plectrophenax nivalis* (52). One was at SE Farallon I., SF, 18 Nov 1992 (LG; 298-1992). One at Bear Valley Ridge, HUM, 22 Nov 1992 was joined by a second bird on 25 Nov 1992 (MM, AME; 105-1993). Most California Snow Buntings have occurred from late October through November.

COMMON GRACKLE *Quiscalus quiscula* (31). A male at Big Pine, INY, 16 Feb–14 Mar 1992 (TH†; DLD†, GMcC, MAP; 93-1992), one at Pt. Loma, SD, 23 Apr 1992 (VPJ, BJ; 202-1992), a different male at Big Pine, INY, 7 Nov 1992 (TH; 300-1992), and an immature male at Stovepipe Wells, Death Valley NP, INY, 29 Nov 1992 (RS†; LL; 35-1993) all appeared to be Bronzed Grackles, *Q. q. versicolor*, the only subspecies recorded in California.

RECORDS NOT ACCEPTED, identification questionable

YELLOW-BILLED LOON *Gavia adamsii*. The description of one in Carmel Bay, MTY, 20 Jan 1992 (67-1992) mentioned a pale yellow bill but did not go into any detail on the distribution of paleness on the bill or some of the other marks expected on this species.

STREAKED SHEARWATER *Calonectris leucomelas*. One was reported near shore at La Jolla, SD, 18 Nov 1992 (83-1993). This record failed to get any support for a variety of reasons, including the location, late date, and incomplete description. In addition, the bill was described as pink with a black tip, whereas the vast majority of Streaked Shearwaters have a pale grayish bill with dusky on the tip of only the mandible.

RECORDS NOT ACCEPTED, identification questionable, Cont.

BAND-RUMPED STORM-PETREL *Oceanodroma castro*. A storm-petrel well studied and well described bird off San Francisco, west of the Gumdrop Seamount, SF, 2 May 1992 (158-1992) may have been this species. Understanding of the criteria for distinguishing Band-rumped and Leach's (*O. leucorhoa*) storm-petrels in the field, however, is still evolving. The flight behavior and amount and pattern of white on the under tail coverts of Leach's vary tremendously. There is a difference in tail length and the depth of the fork in the tail, but these can be very difficult to assess in the field. One Committee member, from a drawing of the tail, felt this identification was incorrect, demonstrating the importance most of us place on this field mark. Also, the Band-rumped is a warm-water species, and the waters off San Francisco at the time of this observation were quite cold. As mentioned in previous reports (e.g., Heindel and Garrett 1995), we have accepted only one record for California (McCaskie 1990), and given the complexities, it is being re-reviewed.

TRUMPETER SWAN *Cygnus buccinator*. A photograph of five swans from Arcata Bottoms, HUM, 2–6 Jan 1991 (Figure 11; 58-1991) demonstrates the difficulty in identifying them, particularly when vocal clues are not available. After three circulations of this record, there is still no consensus; a majority of the Committee felt these birds were most likely Tundra Swans (*C. columbianus*). The variation in interpretation of these photographs supports the tough scrutiny records of the Trumpeter have received lately. An immature at White L., Lower Klamath NWR, SIS, 18 Jan 1992 (104-1992) was identified only by direct size comparison with nearby Tundra Swans. See Patten and Heindel (1994) for pitfalls in the identification of immature Trumpeter and Tundra swans.

Figure 11. This group of five swans on 5 January 1991, at Arcata Bottoms, HUM (58-1991) illustrates how difficult the identification of Trumpeter (*C. buccinator*) and Tundra (*C. columbianus*) Swans can be. Though a majority of the Committee concluded that this was a group of Tundra Swans, a consensus could not be reached.

Photo by Michael Hughes

RECORDS NOT ACCEPTED, identification questionable, Cont.

TUFTED DUCK *Aythya fuligula*. Reports of males at Novato, MRN, 12 Feb 1988 (69-1991) and at Pyramid L., LA, 14 Jan–7 Feb 1991 (102-1992) lacked convincing, contemporary documentation, although each was felt to be likely correct by a majority of Committee members. Indeed, the Pyramid Lake bird may have been a previously accepted male returning for its second winter (see Patten and Erickson 1994).

ZONE-TAILED HAWK *Buteo albonotatus*. Although this species has become annual in winter in southern California, the description of one at Irvine Regional Park, ORA, 20 Dec 1992 (122-1993) was very brief, and owing to lighting and quick views, too weak to garner support.

GRAY-TAILED TATTLER *Heteroscelus brevipes*. A tattler, photographed and seen next to a Wandering Tattler (*H. incanus*) on Southeast Farallon I., SF, 9 Oct 1992 (53-1993), had whiter sides, looked a touch paler, and had wingtips falling just short of the tail. In addition, a call that reminded the observer of a golden-plover's (*Pluvialis dominica/fulva*) was heard near the tattlers. Dennis Paulson reviewed the photograph but considered the identification inconclusive, although the bird in question definitely had paler sides. Some Committee members wondered whether a Wandering Tattler could be that pale, or if it could drop its wings enough to cover some of the gray that typically shows on the flanks. The calls are generally believed to be the most diagnostic character. The typical call of the Gray-tailed is a two-noted upslurred whistle, quite different from the repeated monotone whistle of the Wandering. Less frequently, the Gray-tailed gives a three-noted whistle, still upslurred, as was the case with the call in question. The uncertainty over whether the vocalization came from a tattler was a significant factor in most members' letting this one go. Finally, a juvenile Gray-tailed should show extensive spotting on the upperparts, somewhat reminiscent of that of the smaller sandpipers of the genus *Tringa* (e.g., the Solitary, *T. solitaria*, or Wood, *T. glareola*). The general consensus was that this may very well have been a "good one that got away." Excellent reading on the identification of this species pair has been published recently (Paulson 1993, Hirst and Proctor 1995).

CURLEW SANDPIPER *Calidris ferruginea*. It was apparent that the description of one at Princeton Harbor, SM, 8 Aug 1992 (51-1993) was written well after the observers consulted many references. We discourage this practice to the extent possible, as it may influence subtle details that were not observed, even with the best of intentions on behalf of the observer. In this case, the main concern was that the observer, stating it was molting to basic from either adult or juvenal plumage, was not certain of the bird's age. We feel that if a shorebird cannot be aged with certainty, certainty of its identification is not likely. Also, the peach color ascribed to this bird's underparts is far more appropriate for the Red Knot (*C. canutus*). Some members felt that this bird could have been a molting adult Red Knot, perhaps with more droop to the bill than most.

UPLAND SANDPIPER *Bartramia longicauda*. One at Crescent City, DN, 8 Sep 1992 (49-1993) proved difficult for the Committee. Much of the description was good and the date certainly fits the Upland Sandpiper's pattern in fall. There were some weaknesses in the description, however, and a local observer added uncertainty. Given the rarity of this species in California, only one member supported the record.

LITTLE/RUFOUS-NECKED STINT *Calidris minuta/ruficollis*. A juvenile peep reported to be one of these species was seen at Elkhorn Slough, MTY, 8 Sep 1992 (13-1993). The basis for the report was a perceived lack of vestigial webs and bright plumage. We cannot overemphasize the need for caution is assessing whether these webs are present or absent. Often, seeing the webs in the field is almost impossible.

RECORDS NOT ACCEPTED, identification questionable, Cont.

Another major pitfall in this identification is seeing a juvenile Least Sandpiper (*C. minutilla*) with basic-plumaged adults. The juvenile looks bright in comparison, and the leg color is often obscured by mud. Finally, the range of brightness of juvenile Semipalmated Sandpipers (*C. pusilla*) is an underappreciated identification problem. The detail on critical feathers provided in this report failed to address these concerns adequately.

LONG-TOED STINT *Calidris subminuta*. One reported at the Salinas R. mouth, MTY, 17 Sep 1992 (268-1992) was photographed, but the images were too distant to be of any value. Some parts of the description were intriguing, but others were deficient, and some did not seem right. The observer compared this individual to an adult he photographed in Alaska, saying it matched that bird very well. Although in the Long-toed the juvenile arguably looks more like the adult than do those of other *Calidris* sandpipers, it is still quite distinct, and a comparison is not really appropriate.

SOOTY TERN *Sterna fuscata*. We considered two older reports that had not previously been reviewed by the Committee. One was from San Clemente, ORA, 13 Aug 1968 (119-1994), the other from Venice Beach, LA, 27 Jul 1969 (120-1994). Both records received only four votes to accept, as the majority felt the documentation supplied did not have enough detail. These records' being reviewed now is related to the recent appearance of tropical terns. As noted by Heindel and Garrett (1995) there have been recent reports from Bolsa Chica, ORA, where in the summer of 1995, a Sooty Tern was photographed and seen over a prolonged period.

VIOLET-CROWNED HUMMINGBIRD *Amazilia violiceps*. Shortly after the sighting of one in Kenwood, SON, 28–30 Mar 1992 (see under Records Accepted, 110A-1992), there was a report from Tiburon, MRN, 2–7 Apr 1992 (110B-1992). Members felt the locations were too far apart to involve the same individual, so each record needed to stand on its own. Given the rarity of the Violet-crowned Hummingbird anywhere in California, especially this far north, the description should be complete and the bird should have been seen at length in good light. In this case, the entire bird was not viewed and lighting was poor, leaving most of us uncertain of the identification.

BLUE-THROATED HUMMINGBIRD *Lampornis clemenciae*. A female was reported from Morongo Valley, SBE, 25 Apr 1992 (139-1992). This record failed to get any support on its first circulation. With only one record for the state, all reports of this species receive exceptional scrutiny. In this case, the bird was described as 1.25 to 1.5 times the size of a Costa's Hummingbird (*Calypte costae*). Although linear measurements support the latter comparison, all members noted that the difference in volume is much greater, making the Blue-throated appear in the field to dwarf Costa's. Furthermore, the eyestripe and other facial details were not well described, making many of us suspect an Anna's Hummingbird (*C. anna*) may have been misidentified. Anna's are quite numerous at Morongo Valley (Patten pers. obs.), and a juvenile female Anna's matches the described bird very well.

THREE-TOED WOODPECKER *Picoides tridactylus*. One was reported from Dixie Mt., PLU, 26 Jun 1992 (245-1992). The Committee was impressed with the honest write-up and many felt the species claimed may indeed have been present. But with only one accepted record for California (Trochet et al. 1988), a report of the Three-toed Woodpecker must meet a high standard. In this case, there was no mention of the number of toes and the facial pattern seemed to have a bit too much white. Furthermore, acceptance of this record would imply either unprecedented wandering or an unknown population over 100 miles from the previous record. Although everyone concedes that such wandering it possible, a more certain record is

RECORDS NOT ACCEPTED, identification questionable, Cont.

necessary to establish it. The most likely source of confusion is with a juvenile Hairy Woodpecker (*P. villosus*). Kaufman (1993) covered this problem well. The Committee appreciates the observer's understanding of the need for caution.

GREATER PEWEE *Contopus pertinax*. One was reported at the Big Sur R. mouth, MTY, 19 Sep 1992 (307-1992), but the early date, incomplete description, and after-the-fact identification led to caution among the Committee. Only two Greater Pewees, in Huntington Beach, ORA, 11 Sep 1991 and Newport Beach, ORA, 14 Sep 1991 (Patten et al. 1995), have occurred earlier in the fall.

NORTHERN WHEATEAR *Oenanthe oenanthe*. One at San Rafael, MRN, 12 Dec 1992 (70-1993) was supported by details suggesting a wheatear but also not eliminating a number of other species such as the Loggerhead Shrike (*Lanius ludovicianus*).

VEERY *Catharus fuscescens*. One reported at Galileo Hill Park, KER, 25 Oct 1992 (277-1992) was described as being rather olive throughout the upperparts. Despite the misleading illustration in the National Geographic Society's (1987) *Field Guide to the Birds of North America*, even the westernmost subspecies *C. f. salicicolus* is fairly rufous above. See Phillips (1991) for an appreciation of the range of variation in this species, but Patten's examination of the specimen itself (WFVZ 50311) suggests the putative specimen of *salicicolus* in the color photograph facing page 104 is instead a Gray-cheeked Thrush (*C. minimus*).

GRAY-CHEEKED THRUSH *Catharus minimus*. One at the Smith R. mouth, DN, 6 Jun 1992 (242-1992) may well have been this species, as the observer is experienced. Nevertheless, the brief views and somewhat incomplete description led to a caution with a species so difficult to identify in the field.

YELLOW WAGTAIL *Motacilla flava*. Individuals reported at Black Butte Dam, TEH, 26 Sep 1992 (283-1992) and Novato, MRN, 4 Dec 1992 (58-1993) were supported by details suggesting other species were in fact involved.

WHITE WAGTAIL *Motacilla alba*. Although a male White Wagtail had wintered near Saticoy and Oxnard in three of the previous four winters (Pyle and McCaskie 1992, Patten and Erickson 1994), the report of a male at Saticoy, VEN, 8 Feb 1992 (86-1992) was too brief to add another year to its occurrence.

WHITE/BLACK-BACKED WAGTAIL *Motacilla alba/lugens*. One reported at Coyote Creek Riparian Station, SCL, 15 Dec 1991 (219-1992) was not thoroughly described; indeed, it was not even clear that a wagtail was seen. Given the extreme difficulty in the identification of these sister species, a complete description of any suspected wagtail is essential for the review process to be worthwhile.

RED-THROATED PIPIT *Anthus cervinus*. A heard-only fly-over was reported by a reliable observer at Bolinas, MRN, 22 Oct 1991 (157-1991). As noted by Patten et al. (1995), the Committee's standards have changed somewhat in recent years, so that records of Red-throated Pipits heard only are now often found unacceptable, lacking a necessary level of documentation that simply cannot be provided given the nature of the records.

SPRAGUE'S PIPIT *Anthus spragueii*. The description of two birds reported 6 miles NE of Coalinga, FRE, 15 May 1992 (160-1992) suggested that they were in fact juvenile Horned Larks (*Eremophila alpestris*). This record is not the first of juvenile Horned Larks being misidentified at Sprague's Pipits. Observers should note carefully the behavior, calls, and face, back, and tail patterns of any purported Sprague's Pipits before reporting this species.

RECORDS NOT ACCEPTED, identification questionable, Cont.

PHILADELPHIA VIREO *Vireo philadelphicus*. Although perhaps correct, the identification of a bird at Big Sur R. mouth, MTY, 3 Oct 1992 (309-1992) was questioned because the observation was brief and the details were sparse.

MOURNING WARBLER *Oporornis philadelphia*. Photographs and detailed descriptions from two experienced observers suggested that a bird reported at Galileo Hill Park, KER, 9 Oct 1992 (22-1993) may have been an immature MacGillivray's Warbler (*O. tolmiei*) with a yellowish wash to the throat. The rather bold eye-arcs, distinct breast-band, yellowish flanks, and grayish head supported the identification of this bird as a MacGillivray's, but the call note and, perhaps, the throat color suggested a Mourning. The possibility of a hybrid cannot be dismissed, although this hybrid combination is unproven in nature; instead, various factors "suggest that extreme *Oporornis* specimens are not hybrids" (Pitocchelli 1993). More likely, the bird was a MacGillivray's Warbler showing an extreme amount of yellow on the throat, featured by a small percentage of first-year MacGillivray's. See Pitocchelli (1990, 1993) and Pyle and Henderson (1990) for more information about variation and identification pitfalls in this difficult species pair.

RED-FACED WARBLER *Cardellina rubrifrons*. The brevity of observation and the observer's not having binoculars led to a cautious approach for one reported at Coyote Hills Regional Park, ALA, 30 Apr 1992 (184-1992), although the details suggested that this species may indeed have been involved.

EASTERN MEADOWLARK *Sturnella magna*. A bird photographed at SE Farallon I., SF, 29 May 1992 (254-1992) was reported as *S. m. lilianae*, the pale southwestern subspecies. Although field identification of this subspecies (versus Western Meadowlark, *S. neglecta*) may be possible (Zimmer 1984, 1985), the distance of the observation precluded a detailed plumage description and large-image photographs. The Committee tends to exercise extreme caution with potential first state records.

RECORDS NOT ACCEPTED, natural occurrence questionable (identification accepted)

BAR-HEADED GOOSE *Anser indicus*. One was at Lake Merritt, ALA, 1 Jun 1992 (WVM†; 177-1992). The Committee appreciates the efforts to document this record, and the photographs certainly do that. Because the Bar-headed Goose is common in captivity, however, a pattern of records (from Alaska, for example) must develop before a California record will be given serious consideration.

RUDDY SHELDUCK *Tadorna ferruginea*. One was at Tule Lake NWR, SIS, 8 Aug 1992 (ADD†;213-1992). Another was well described from Sacramento NWR, GLE, 14 Nov 1992 (WM; 285-1992). The identification of this species is straightforward; it is common in captivity, however, and wild Ruddy Shelducks are not thought to occur anywhere near California.

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LITERATURE CITED

Bevier, L. R. 1990. Eleventh report of the California Bird Records Committee. W. Birds 21:145–176.

Binford, L. C. 1985. Seventh report of the California Bird Records Committee. W. Birds 16:29–48.

Curson, J. 1994. Identification forum: Separation of Bicknell's and Grey-cheeked Thrushes. Birding World 7:359–365.

Dunn, J. L. 1988. Tenth report of the California Bird Records Committee. W. Birds 19:129–163.

Grinnell, J. 1915. A distributional list of the birds of California. Pac. Coast Avifauna 11.

Heindel, M. T., and Garrett, K. L. 1995. Sixteenth report of the California Bird Records Committee. W. Birds 26:1–33.

Hirst, P., and Proctor, B. 1995. Identification of Wandering and Grey-tailed Tattlers. Birding World 8:91–97.

Howell, S. N. G. 1995. Magnificent and Great Frigatebirds in the Eastern Pacific. Birding 26:400–415.

Jackson, G. D. 1992. Field identification of teal in North America, female-like plumages. Part II: Garganey and Baikal Teal. Birding 24: 214–223.

Johnson, N. K. 1995. Seven avifaunal censuses spanning one-half century on an island of White Firs (*Abies concolor*) in the Mojave Desert. Southwest. Nat. 40:76–85.

Kaufman, K. 1993. The practiced eye: Identifying the Hairy Woodpecker. Am. Birds 47:311–314.

Langham, J. M. 1991. Twelfth report of the California Bird Records Committee. W. Birds 22:97–130.

Luther, J. S. 1980. Fourth report of the California Bird Records Committee. W. Birds 11:161–173.

Luther, J. S., McCaskie, G., and Dunn, J. 1979. Third report of the California Bird Records Committee. W. Birds 10:169–187.

Luther, J. S., McCaskie, G., and Dunn, J. 1983. Fifth report of the California Bird Records Committee. W. Birds 14:1–16.

Manolis, T. 1972. A Louisiana Heron in northeastern California. Calif. Birds 3:19–21.

Manuwal, D. A., and Lewis, T. J. 1972. A Wheatear on Southeast Farallon Island, California. Auk 89:895.

Marchant, J., Hayman, P., and Prater. T. 1986. Shorebirds: An Identification Guide to the Waders of the World. Croom Helm, Kent, England.

McCaskie, G. 1990. First record of the Band-rumped Storm-Petrel in California. W. Birds 21:65–68.

McCaskie, G., and Patten, M. A. 1994. Status of the Fork-tailed Flycatcher (*Tyrannus savana*) in the United States and Canada. W. Birds 25:113–127.

McLaren, I. A. 1995. Field identification and taxonomy of Bicknell's Thrush. Birding 27:358–366.

Monroe, B. L., Jr. 1955. A new gull to North America. Auk 72:208.

Monroe, B. L., Jr., and Barron, A. 1980. The Fork-tailed Flycatcher in North America. Am. Birds 34:842–845.

Morlan, J. 1985. Eighth report of the California Bird Records Committee. W. Birds 16:105–122.

Munro, J. A. 1957. Waterfowl at Morro Bay. Murrelet 38:24.

National Geographic Society. 1987. Field Guide to the Birds of North America, 2nd ed. Natl. Geogr. Soc., Washington, D.C.

Ouellet, H. 1993. Bicknell's Thrush: Taxonomic status and distribution. Wilson Bull. 105:545–572.

Patten, M. A. 1993. First record of the Common Pochard for California. W. Birds 24:235–240.

Patten, M. A., and Erickson, R. A. 1994. Fifteenth report of the California Bird Records Committee. W. Birds 25:1–34.

Patten, M. A., and M. T. Heindel. 1994. Identifying Trumpeter and Tundra swans. Birding 26:306–318.

Patten, M. A., Finnegan, S. E., and Lehman, P. E. 1995. Seventeenth report of the California Bird Records Committee: 1991 records. W. Birds 26:113–143.

Paulson, D. 1993. Shorebirds of the Pacific Northwest. Univ. of Wash. Press, Seattle.

Phillips, A. R. 1991. The Known Birds of North and Middle America, part II. A. R. Phillips, Denver.

Pitocchelli, J. 1990. Plumage, morphometric and song variation in Mourning (*Oporornis philadelphia*) and MacGillivray's (*O. tolmiei*) warblers. Auk 107:161–171.

Pitocchelli, J. 1993. Plumage and size variation in the Mourning Warbler. Condor 94:198–209.

Pyle, P., and Henderson, P. 1990. On separating female and immature *Oporornis* warblers in fall. Birding 22:222–229.

Pyle, P., Howell, S. N. G., Yunick, R. P., and DeSante, D. F. 1987. Identification Guide to North American Passerines. Slate Creek Press, Bolinas, CA.

Pyle, P., and McCaskie, G. 1992. Thirteenth report of the California Bird Records Committee. W. Birds 23:97–132.

Roberson, D. 1986. Ninth report of the California Bird Records Committee. W. Birds 17:49–77.

Roberson, D. 1993. Fourteenth report of the California Bird Records Committee. W. Birds 24:113–166.

Robert, H. 1971. First record of the Field Sparrow in California. Calif. Birds 2:72.

Terrill, S., Able, K. P., and Patten, M. A. 1992. The changing seasons: Summer 1992. Am. Birds 47:1109–1111, 1182.

Toppan, G. L. 1884. Fork-tailed Flycatcher. Ornithol. Ool. 9:48.

Townsend, C. H. 1885. The occurrence of the Catbird (*Mimus carolinensis*) on the Farallone Islands, Pacific Ocean. Auk 2:215–216.

Trost, C. 1991. A Fork-tailed Flycatcher in Idaho! Idaho Wildlife 45:24.

Wedgwood, J. A. 1988. A Fork-tailed Flycatcher at Drumheller, Alberta. Blue Jay 47:113–117.

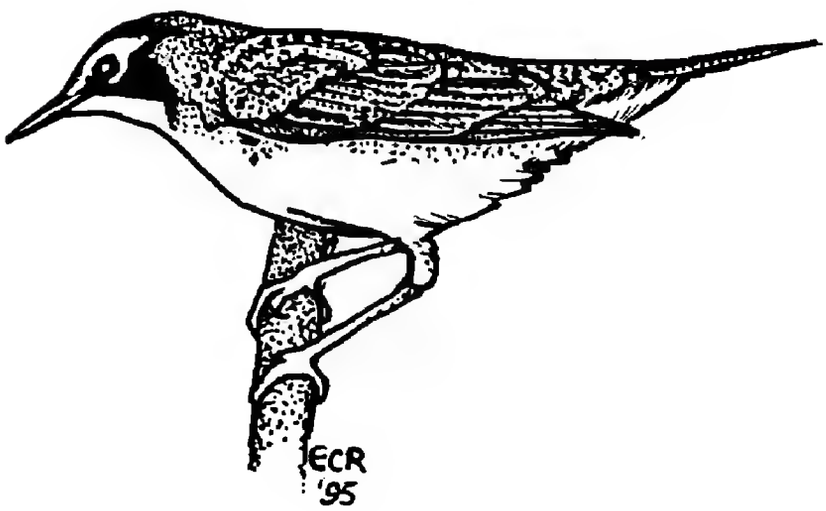
Wheeler, B. K., and Clark, W. S. 1995. A Photographic Guide to North American Raptors. Academic Press, San Diego.

Willett, G. 1933. A revised list of the birds of southwestern California. Pac. Coast Avifauna 21.

Zimmer, K. J. 1984. ID point: Eastern vs. Western meadowlarks. Birding 16:155–156.

Zimmer, K. J. 1985. The Western Bird Watcher: An Introduction to Birding in the American West. Prentice-Hall, Englewood Cliffs, NJ.

Accepted 17 November 1995



Kentucky Warbler *Sketch by Edward Rooks*

BREEDING DISTRIBUTION OF VAUX'S SWIFT IN CALIFORNIA

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Vaux's Swift (*Chaetura vauxi*) is a migrant that breeds from the western United States south to northern Venezuela and winters from central Mexico to Venezuela (AOU 1983). In 1994, the California Department of Fish and Game designated it a "species of special concern." Its breeding biology and habitat requirements are poorly known but are thought to be closely linked to old-growth forests (Lundquist and Mariani 1991, Bull and Hohmann 1993). One of the most controversial topics facing biologists today is the fragmentation of old-growth forests and its effects on bird distribution in the western United States (Harris 1984, Thomas et al. 1990). The bulk of the ornithological work addressing this topic focuses on the ecology of three species, the Spotted Owl (*Strix occidentalis*) (Thomas et al. 1990), Marbled Murrelet (*Brachyramphus marmoratus*) (Carter and Morrison 1992), and Pileated Woodpecker (*Dryocopus pileatus*) (Mellen 1987). Other species receive relatively little research emphasis (Carey 1989, Ralph et al. 1991, Huff and Raley 1991).

Most published studies on Vaux's Swift have concentrated on its use of man-made chimneys as nest sites (Baldwin and Hunter 1963, Baldwin and Zaczkowski 1963, Thompson 1977), although more recent work focuses on forested ecosystems in northeastern Oregon (Bull and Cooper 1991, Bull and Hohmann 1993, Bull and Beckwith 1993).

For California, Grinnell and Miller (1944) described the breeding distribution of Vaux's Swift as extending in a "narrow northwest coast belt south from the Oregon line in Del Norte County as far south as Santa Cruz, Santa Cruz County." The coastal breeding range of swifts in California generally corresponds to the historical distribution of the Coast Redwood (*Sequoia sempervirens*) (Kuchler 1977). Less than 10% of the original old-growth redwood forest remains (Fox 1989), the rest having been harvested (Green 1985) since the early ornithological surveys of California. Grinnell and Miller (1944) also cited occasional breeding-season records from the Sierra Nevada. We discuss here the current distribution of Vaux's Swift in California based on our recent survey work, U.S. Fish and Wildlife Service (FWS) breeding-bird surveys, anecdotal observations, and a review of the literature.

METHODS

Vaux's Swifts were censused from Del Norte to Sonoma County during 129 Marbled Murrelet surveys conducted in 1989 by Paton and Ralph (1990), who provided details on the study areas and survey methods.

Biologists conducted surveys along transects, with 250 to 1000 m spacing between stations and 8 to 12 stations per transect. They censused each station for 10 minutes. The survey period extended from 45 minutes before to 90 minutes after sunrise from mid-May through mid-August. They noted swifts as present or absent at each station. Defining statistical significance as alpha ≤ 0.05, we compared swift use of old-growth versus second-growth stands by means of a log-likelihood ratio-test statistic (G^2).

Fox (1989), using infrared aerial photographs, mapped and classified redwood forest as old growth (> 200 yrs. old) or second growth (< 200 yrs. old). Using these data, we designated each of our transects as old growth or second growth.

J. Hunter and G. Hazard (unpublished data) conducted 4452 ten-minute point counts in 274 randomly selected late mature (150–200 yrs. old) and old-growth (> 200 yrs. old) stands from 17 April to 23 July 1995 in the Mad River Ranger District of the Six Rivers National Forest. Their study area extended north to Last Chance Ridge, south to the Yolla Bolly Wilderness, west to approximately 30 miles from the coast, and east to 45 miles from the coast at South Fork Mountain.

Sterling searched for Vaux's Swifts during extensive bird surveys for the U.S. Forest Service in Modoc, eastern Shasta, and northwestern Lassen counties from April to September 1990 and 1991. These surveys included 30 transects each 1 km long and 200 meters wide as well as incidental observations during active searching from all localities accessible by road. The bulk of the effort was along Hat Creek, in the Warner Mountains, on the Modoc Plateau, and in the Black's Mountain region.

We searched *American Birds* files for all breeding-season records of Vaux's Swift in northern California. We also obtained data from the Breeding Bird Survey Program (BBS) of the FWS as well as from numerous birders and biologists.

We felt that swifts found from June to early August were probably not migrants and represented breeding populations. We incorporated data from mid May in the results only if swifts were also present at that site in June and July. Apart from a few nesting records from chimneys in towns, conifers provide nesting and roosting sites.

RESULTS

Swifts on Marbled Murrelet Surveys

Swifts were observed on 48 of the 129 surveys (37.2%). We plot the locations in Figure 1. There was a tendency for swifts to be detected more often on old-growth transects: 29 of 65 old-growth transects (44.6%) and 19 of 64 second-growth transects (29.7%). However, using a log-likelihood ratio test, we found the difference of $P = 0.079$ ($G^2 = 3.09$, df = 1) only marginally significant statistically.

During murrelet surveys, we saw swifts in all four northwestern California counties—Del Norte, Humboldt, Mendocino, and Sonoma (Figure 1). Areas with the most stations where swifts were present included the large state and national parks in Humboldt and Del Norte counties: Jedediah Smith Red-

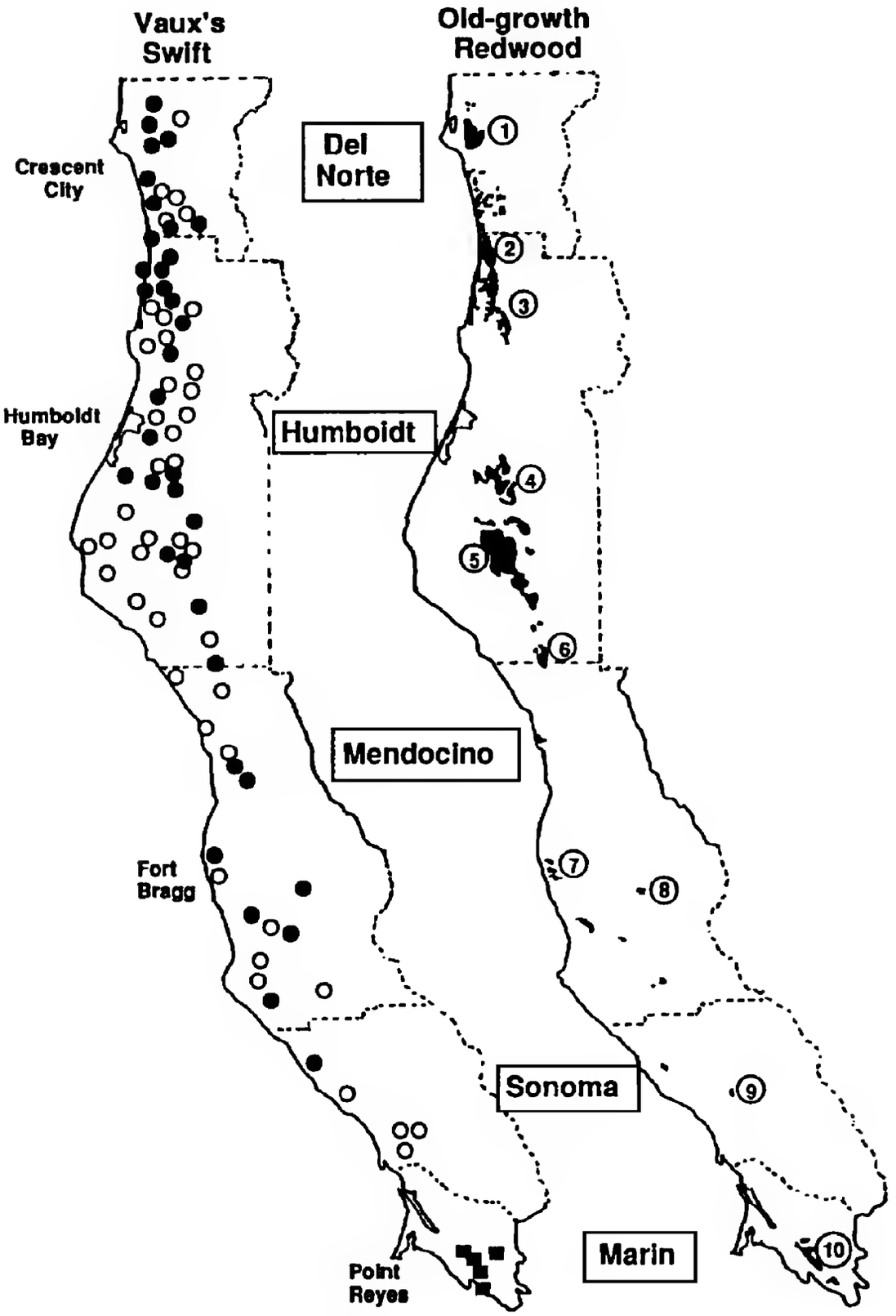

Figure 1. Current distribution of Vaux's Swift and old-growth redwood in northwestern California, based on Fox (1989). Open circles, no swifts detected on murrelet transect; filled circles, swifts detected on murrelet transect; filled squares, probable swift breeding site from Shuford (1993). Numbered polygons: (1) Jedediah Smith Redwoods State Park, (2) Prairie Creek Redwoods State Park, (3) Redwood National Park, (4) Pacific Lumber Company lands, (5) Humboldt Redwoods State Park, (6) Miranda, (7) Russian Gulch/Van Damme state parks, (8) Standish Hickey State Park, (9) Armstrong Redwoods State Park, (10) Samuel P. Taylor State Park.

woods State Park, Prairie Creek Redwoods State Park, Redwood National Park, and Humboldt Redwoods State Park. Encounters with swifts extended as far inland as 24 miles at Grizzly Creek Redwoods State Park, Humboldt County, although this was the farthest inland that we conducted murrelet surveys.

Point-Count Data from Six Rivers National Forest

Hunter and Hazard detected swifts on only three of 4452 point counts. Two records were during the breeding season: in addition, a pair and a single swift were at two locations in the study area (see Appendix A). These sites are 35 to 45 miles inland.

Distribution Throughout California

In the northeast, pairs in courtship display were located at three widely scattered areas along Hat Creek, at four localities in the Warner Mountains, and in the town of Fort Bidwell. Swifts were not detected from over a large area including the Black's Mountain region of the Lassen National Forest and the Modoc Plateau (Sterling pers. obs.).

Of the 217 BBS routes conducted throughout California from 1968 to 1994, only 32 had swifts, primarily in the northwest and northeast (Figure 2). The routes within 25 miles of the north and central coast averaged 1.64 swifts per route per year for all survey years ($n = 310$). In contrast, routes in the northeast averaged only 0.48 swifts ($n = 169$). Using a two-tailed t test, we found the difference highly significant, with $P < 0.000001$.

We determined that the coastal breeding range extends from the north coast of Del Norte County south to Santa Cruz County and, rarely, to Big Sur, Monterey County. This matches the broad-scale range described by Grinnell and Miller (1944). However, we speculate that forest fragmentation alters the species' distribution on a smaller scale, as we found the majority of murrelet transects with swifts in parks (Figure 1). Future research should focus on the effects of this fragmentation. Scattered inland records are from western Siskiyou County and central Trinity County south through central Mendocino County and eastern Sonoma County. Infrequently, a few pairs have nested in chimneys in eastern Modoc, central Sonoma, central Contra Costa, and Santa Clara counties. Further inland, a few swifts reside from southeastern Siskiyou County south along the west slope of the Sierra Nevada to Tulare County (most between 1500 and 4500 feet elevation) and in eastern California from the Warner Mountains in Modoc County south to Sierraville, Plumas County (Appendix; Figure 2) (BBS data, *Am. Birds* data, Gaines 1992, Harris 1991, Roberson and Tenney 1993, Shuford 1993, Sterling pers. obs.).

DISCUSSION

We view the results from several angles. First, Vaux's Swift's breeding distribution may be closely linked to the availability of suitable nest sites, namely, large, hollow live trees and snags and man-made chimneys (Bull and Collins 1993). Second, we lack both quantitative and qualitative data on

nest-site selection in California. Third, we lack detailed knowledge of how far Vaux's Swifts range from their nests and how that distance may vary by habitat, stage of the nesting cycle, or time of day.

A discussion of the species' breeding range should consider the availability of suitable nest sites; however, there is still relatively little known about the breeding ecology of Vaux's Swifts in California forests. In northeastern Oregon, all 21 nests found by Bull and Cooper (1991) were in Grand Firs (*Abies grandis*) decayed and hollowed out by Indian paint fungus (*Echinodontium tinctorium*) and excavated by Pileated Woodpeckers. In California, the Grand Fir is restricted to the north coast forests, where it is

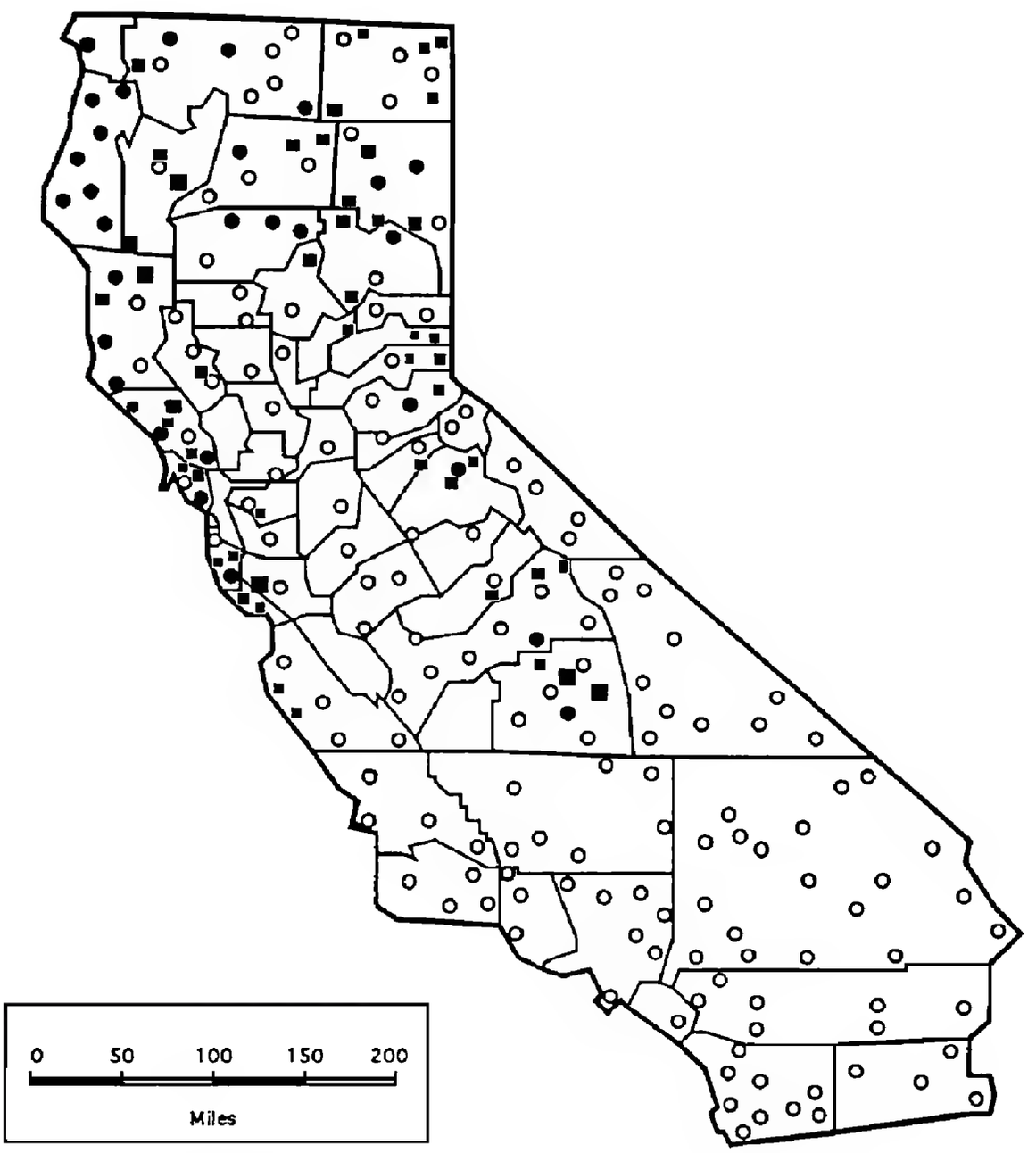

Figure 2. Current distribution of Vaux's Swift in California during the breeding season. Open circle, no detections on breeding-bird survey route; filled circle, swifts detected on breeding-bird survey route; filled square, single or multiple detections from *American Birds* files and unpublished sightings.

only minor component of the forest. However, evidence for a stronger association between Pileated Woodpeckers and Vaux's Swifts is the close correspondence of the two species' ranges (Zeiner et al. 1990). The swift's only known nesting populations outside of the woodpecker's range in California, in Modoc, Contra Costa, Santa Clara, and Monterey counties, are small. Interestingly, many of the records of swifts nesting in man-made chimneys are from these localities.

It is difficult to assess the effects of forest fragmentation on the coastal range of Vaux's Swift properly because we lack quantitative and qualitative data on potential nest trees. This makes conclusions of habitat requirements based on census results speculative. Bull and Hohmann (1993) positively associated swifts with mature and old-growth forests, which contain a higher density of suitable nest trees than logged stands. However, we are unsure if these findings from northeastern Oregon are relevant to coastal populations, especially in the redwood zone. We did not conduct detailed vegetation studies along our Marbled Murrelet survey transects. Potential nest trees may have existed in both the old-growth and second-growth stands that we surveyed, explaining why we found only slight differences in the swift's frequency in these two forest-age classes. It is possible that the lack of significant difference is due to the definition of the two classes. Bull (pers. comm.) believes that in northeastern Oregon mature stands (>150 years) offer a suitable forest structure and nest sites. Perhaps if we had defined the age classes as second-growth (<150 years) and mature to old-growth (>150 years) we would have found a significant difference in the survey results.

Bull and Hohmann (1993) reported limited use of residual snags in second-growth forest. Dawson (1923) and egg collectors such as Clay (from egg-set data cards at Humboldt State University) described nests in residual snags on old burns and clear-cuts. There is a great need for studies that determine the extent of residual snags in logged stands, the length of time these snags remain standing after the logging of adjacent forest, and the time needed for their regeneration in different areas.

The results of our censuses may reflect the early-morning foraging by swifts in second-growth stands away from their nest trees in old-growth forests. Bull and Beckwith (1993) found swifts foraging more than 40 meters from their nests 47% of the time. To our knowledge, no one has quantified the activity patterns of swifts in California. We need observations of known nest sites and their occupants' foraging to enable us to interpret census results properly. At this point in our knowledge, the best method for assessing the swift's population is censuses of nest sites.

Our study of Vaux's Swift distribution in California has supported and somewhat extended the range described by Grinnell and Miller (1944). The BBS data demonstrate the restriction of highest densities in the state to the narrow coast belt of northern and central California, the redwood zone. The study in Six Rivers National Forest indicates that swifts fall to very low density only 30 to 45 miles inland and in apparently suitable forest, namely, mature and old-growth Douglas Fir (*Pseudotsuga menziesii*). This low density is seemingly representative of the swift population throughout the bulk of its range in California. It is difficult to know whether the species' range in California has recently extended into the northeast. Early explorers possibly

overlooked it. In the Sierra Nevada, apart from one nest, suspected breeding remains undocumented. Amazingly, there are only a few reports of nests in the entire state since Grinnell and Miller (1944). Of these, all but one, to our knowledge, are from chimneys, including the first documented nest for Marin County in 1995 (Appendix).

SUMMARY

In California, Vaux's Swifts live mostly in the narrow redwood-forested coastal zone from Del Norte to Santa Cruz counties. At the time of Grinnell and Miller (1944), there were a few scattered breeding-season records from the Sierra Nevada and no nesting records outside the narrow belt along the north coast. Since then, our knowledge has changed little. There are still only a few records from scattered localities in the Sierra Nevada, and these probably reflect the species' true status rather than our lack of data. The lack of swifts over large areas illustrates how local this distribution is; for example, Jim Steele (pers. comm.) reports an absence of June and July records for the Yuba Pass and Sierra Valley area since 1976. Since the swift nests primarily in hollow snags, the presence of nest sites probably limits its distribution. In northeastern Oregon, suitable nest trees had Pileated Woodpecker cavities, and in California, Vaux's Swift and this woodpecker have nearly coinciding ranges. Their relationship merits more research. In California, ornithologists and birders contribute principally to the understanding of Vaux's Swifts by expanding the number of known summer localities through northeastern California and the Sierra Nevada. Unfortunately, the knowledge of the species in California does not extend much beyond the description of its general range.

ACKNOWLEDGMENTS

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LITERATURE CITED

American Ornithologists' Union. 1983. Check-list of North American Birds, 6th ed. Allen Press, Lawrence, KS.

Baldwin, P. H., and Hunter, W. F. 1963. Nesting and nest visitors of the Vaux's Swift in Montana. Auk 80:81–85.

Baldwin, P. H., and Zaczkowski, N. K. 1963. Breeding biology of the Vaux Swift. Condor 65:400–406.

Bull, E. L. 1991. Summer roosts and roosting behavior of Vaux's Swifts in old-growth forests. Northwest. Naturalist 72:78–82.

Bull, E. L., and Beckwith, R. C. 1993. Diet and foraging behavior of Vaux's Swifts in northeastern Oregon. Condor 95:1016–1023.

Bull, E. L., and Collins, C. T. 1993. Vaux's Swift (*Chaetura vauxi*), in The Birds of North America (A. Poole and F. Gill, eds.), No. 77. Acad. Nat. Sci., Philadelphia.

Bull, E. L., and Cooper, J. D. 1991. Vaux's Swift nests in hollow trees. W. Birds 22:85–91.

Bull, E. L., and Hohmann, J. E. 1993. The association between Vaux's Swifts and old-growth forests in northeastern Oregon. W. Birds 24:38–42.

Burridge, B. (ed.) 1995. Sonoma County Breeding Bird Atlas. Madrone Audubon Soc., Santa Rosa, CA.

Carey, A. B. 1989. Wildlife associated with old-growth forests in the Pacific Northwest. Nat. Areas J. 9:151–162.

Carter, H. R., and Morrison, M. L. (eds). 1992. Status and conservation of the Marbled Murrelet in North America. Proc. West. Found. Vert. Zool. 5:1–133.

Dawson, W. L. 1923. The Birds of California. South Moulton Co., San Diego.

Fox, L. 1989. A classification, map, and volume estimate for the coast redwood forest in California. Forest Rangelands Resources Assessment Program, Calif. Dept. Forestry and Fire Protection, Sacramento, CA.

Gaines, D. 1992. Birds of Yosemite and the East Slope. Artemisia Press, Lee Vining, CA.

Green, K. 1985. The old growth redwood resource: A historical review of harvesting and preservation. Hammon, Jensen, Wallen and Associates, 8407 Edgewater Dr., Oakland, CA 94621.

Grinnell, J., and Miller, A. H. 1944. The distribution of the birds of California. Pac. Coast Avifauna 27.

Harris, L. D. 1984. The Fragmented Forest: Island Biogeography Theory and the Preservation of Biotic Diversity. Univ. Chicago Press, Chicago.

Harris, S.W. 1991. Northwestern California Birds. Humboldt State Univ. Press, Arcata, CA.

Huff, M. H., and Raley, C. M. 1991. Regional patterns of diurnal breeding bird communities in Oregon and Washington, in Wildlife and vegetation communities of unmanaged Douglas-fir forests (L. F. Ruggiero, K. B. Aubry, A. B. Carey, and M. H. Huff, eds.), pp. 177–206. U.S. Forest Serv. Gen. Tech. Rep. PNW-GTR-285.

Kuchler, A. W. 1977. Natural vegetation of California. William and Heintz Map Corp., Washington, D.C. 20027.

Lundquist, R. W., and Mariani, J. M. 1991. Nesting habitat and abundance of snag-dependent birds in the southern Washington Cascade range, in Wildlife and vegetation communities of unmanaged Douglas-fir forests (L. F. Ruggiero, K. B. Aubry, A. B. Carey, and M. H. Huff, eds.), pp. 221–240. U. S. Forest Serv. Gen. Tech. Rep. PNW-GTR-285.

Mellen, T. K. 1987. Home range and habitat use of Pileated Woodpeckers, western Oregon. M. S. thesis, Ore. State Univ., Corvallis.

Paton, P. W., and Ralph, C. J. 1990. Distribution of the Marbled Murrelet at inland sites in California. Northwest. Naturalist 71:72–84.

Ralph, C. J., Paton, P. W., and Taylor, C. A. 1991. Habitat association patterns of breeding birds and small mammals in Douglas-fir/hardwood stands in northwestern California and southwestern Oregon, in Wildlife and vegetation communities of unmanaged Douglas-fir forests (L. F. Ruggiero, K. B. Aubry, A. B. Carey, and M. H. Huff, eds.), pp. 379–394. U.S. Forest Serv. Gen. Tech. Rep. PNW-GTR-285.

Roberson, D., and Tenney, C. (eds.). 1993. Atlas of the Breeding Birds of Monterey County, California. Monterey Peninsula Audubon Soc., Carmel, CA.

Shuford, D. 1993. Marin County Breeding Bird Atlas. Bushtit Press, Bolinas, CA.

Thomas, J. W., Forsman, E. D., Lint, J. B., Meslow, E. C., Noon, B. R., and Verner, J. 1990. A conservation strategy for the northern Spotted Owl. 1990-791-171/20026, U.S. Govt. Printing Office, Washington, D.C.

Thompson, B. C. 1977. Behavior of Vaux's Swifts nesting and roosting in a chimney. Murrelet 58:73–77.

Zeiner, D., Laudenslayer, W. F., Mayer, K., and White, M. (eds.). 1990. California's Wildlife, vol. 2. Calif. Dept. Fish and Game, Sacramento.

APPENDIX. Records of Vaux's Swift in California during the breeding season, from *American Birds* files and unpublished data. Organized by county, location, date, and observer; if the birds were noted using a chimney, this is specified. Abbreviations: cyn., canyon; ft., fort; mt., mountain; PRBO, Point Reyes Bird Observatory; r., river; res., reservoir; S. P., state park.

Butte Co.: Butte Meadows?, Jun–Jul 1973 (D. Gaines)

Contra Costa Co.: Walnut Creek, 12 Jun 1972 (W. Purcell); Alamo, 17 Jun 1981 (J. Richmond)

Del Norte Co.: Crescent City, 8 Jul 1982 (J. Hornstein); Yurok, Klamath R., 6 Jun 1990 (G. Lester), 18 Jun 1990 (A. Barron), 7 Jul 1990 (G. Lester)

El Dorado Co.: Wright's Lake, 17 Jul 1955 (W. Minturn), 14 Jul 1956 (A. Craig); China Flat, 9 Jun 1962 (F. Evenden); Union Valley Res., 6 Jun 1987 (E. Harper); Kyburz, 21 May 1993 (M. Johnson)

Fresno Co.: Kinsh Flat, 29 Jun 1975 (R. Hansen); Teakettle, 1 Jun 1990, 7 Jun 1990 (K. Purcell); Markwood, 18 Jun 1990 (K. Purcell)

Humboldt Co.: Orleans, 30 May 1988 (M. Robbins); Arcata and Eureka, each summer (many observers), in chimneys

Lassen Co.: South Eagle Lake, mid Jun 1974 (S. Laymon); 12 mi. W Susanville, 7 Jul 1979 (M. Mans); Manzanita Lake, 30 Jul 1979 (B. & C. Yutzy); Johnstonville, 4 Jun 1980 (B. Deuel); Crater Lake, 7 Jul 1984 (P. Metropulos); near Westwood, 13 Jul 1985 (J. Hornstein); Blue Lake, S. Warner Mts., 20 Jun 1990 (J. Sterling)

Marin Co.: Lake Lagunitas, 15 Jul 1970 (A. L. Carl); Alpine Lake, 22 Jun 1971 (W. Purcell); Palomarin, 16 Jun–7 Jul 1979, 3 Jun 1977, 23 Jun 1982 (PRBO); Five Brooks, 31 May 1980 (J. Evens), 17 Jun 1977 (B. Sorrie); Bolinas Lagoon, 14 Jun 1980 (J. Evens), 30 Jul 1995 (K. Hansen), in chimney; Novato, 16 Jul 1980 (D. Shuford); Kent Lake, 18 Jul 1981 (D. Shuford); Terralinda, 30 May 1982 (B. Lenarz); Carson Ridge, 5 Jun 1982 (D. Shuford); Garden Club Cyn., 4 Jul 1982 (D. Shuford);

Galloway Cyn., all Jun 1983 (D. DeSante), 1 Jun 1985 (PRBO); Bolinas Ridge, 30 Jun 1985 (D. Holway); Bolinas, 27 Jul 1985 (A. Edwards); Las Gallinas pond, 13 Jul 1988 (D. Holway)

Mariposa Co.: Yosemite, 17 Jun 1969 (A. Baldridge), 13 Jun 1971 (T. Chandik); Tamarack Flat, 25 Jul 1983 (W. Bousman); Vernal Falls, 20 Jul 1984, Chisholm; North Dome Trail, 11 Jun 1985 (R. Marlowe)

Modoc Co.: Buck Creek, 18 Jun 1975 (D. Winkler); Lassen Creek, 21 Jun 1975 (D. Winkler); Day, 8 Jun 1980 (S. Laymon); Whitehorse Flat R., 3 Jun 1985 (M. Robbins); Thoms Creek at Highway 299, 5 Jun 1985 (J. Greenhouse); Clear Lake, 15 Jul 1985 (D. Shuford); Soup Creek, S. Warner Mts., 20 Jun 1990 (J. Sterling); Ft. Bidwell, 11 Aug 1988, Jun–Jul 1990, Jun–Jul 1991 (J. Sterling), in chimney; near Eagleville, 15 Jul 1990 (J. Sterling); Cedar Pass, Jun–Jul 1991 (J. Sterling); S. Warner Mts., 6 Jul 1991 (A. Barron)

Mono Co.: Paha Campground, 20 Jul 1985 (H. Green)

Monterey Co.: Torres and Grimes Creek, 5 Aug 1984 (D. Roberson); Big Sur R. mouth, 8 Jun 1985 (D. Roberson); Partington Cyn., 29 Jun 1991 (D. Roberson)

Nevada Co.: Boca Res., 16 Jul 1959 (G. McCaskie); Sagehen Creek, 19 Jul 1966 (H. Cogswell)

Placer Co.: Tahoe City, 16 Jul 1959 (G. McCaskie), 16 Jun 1962 (P. DeBenedictis), 20 Jun 1982 (D. Yee); French Meadows, 27 Jun 1982 (T. Chandik)

Plumas Co.: Buck's Lake, 9 Aug 1973 (R. Stallcup); Butterfly, 2 Jul 1974 (P. Metropulos); Chester, 5 Jul 1984 (H. Green); L. Almanor, 22 Jul 1987 (H. Green)

San Mateo Co.: Skyline Ridge, 16 Jun 1981 (D. Houk), 11 Jun 1988 (W. Bousman); Skyline Ranch, 29 Jun 1986, 13 Jul 1986 (P. Noble); Pescadero, Jun–Jul 1987 (H. Green); Gazos Creek, 1 Jul 1987, 8 Jun 1988 (H. Green); Año Nuevo, 6 Jul 1988 (P. Metropulos)

Santa Clara Co.: Los Gatos, 16 Jul 1957 (E. Smith), in chimney, 28 Jun 1991 (J. DuBois), in chimney; Saratoga, 18 Jun 1959 (E. Smith), in chimney, 7 Jul 1987 (W. Bousman); Rancho San Antonio, 4 Jul 1986 (A. Edwards); Coyote Creek, 6 Jun 1987 (D. Roberson); Vasona Res., 6 Jun 1987 (W. Bousman); Fremont Older Open Space Preserve, 22 Jun 1987 (W. Bousman)

Santa Cruz Co.: Santa Cruz Swamp, 17 Jul 1955 (A. Craig); Aptos, 21 Jul 1985 (B. LaBar), in chimney; Ben Lomond, 6 Jun 1987 (N. Naslund), in chimney; Summit Meadows, 16 Jun 1987 (D. Suddjian); Univ. Calif., Santa Cruz, 17 Jun 1987 (D. Suddjian); Big Basin S. P., 20 Jun 1987, 30 Jun 1987 (D. Suddjian); 11 Jun 1989 (P. Paton); Soquel, 26 Jun 1987 (D. Suddjian); Brookdale, 3 Jul 1987, 12 Jul 1988 (N. Naslund), in chimney; Henry Cowell S. P., 15 Jul 1987 (D. Suddjian); San Lorenzo R., 24 Jul 1987, 25 Jun 1988 (D. Suddjian); Sycamore Grove, 5 Jun 1988 (D. Suddjian); Scott's Valley, 25 Jul 1988 (N. Naslund), in chimney; Blooms Creek Campground, 27 Jun 1989 (N. Naslund)

Shasta Co.: Ft. Cook, 2 Jun 1971 (T. Manolis); Burney Falls, 10 Jul 1979 (B. & C. Yutzy), Jun–Jul 1990, Jun–Jul 1991 (J. Sterling); Hat Creek town, Jun–Jul 1990 (J. Sterling); Hat Creek at Pit R., Jun–Jul 1990, Jun–Jul 1991 (J. Sterling)

Sierra Co.: Chapman Creek, 20 Jul 1962 (F. Evenden)

Siskiyou Co.: Bull Mt., 18 Jun 1980 (S. Laymon); Cedar Lake, 22 Jun 1980 (B. & C. Yutzy); Butler Creek, 2 Jun 1985 (M. Robbins); Crepo Creek, 1 Jun 1986 (M. Robbins); Thompson Creek, 27 May 1987 (M. Robbins); Somes Bar, 30 May 1988 (M. Robbins); Seiad, 3 Jun 1989 (M. Robbins)

Sonoma Co.: Gualala, 16 Jun 1956 (W. Pursell), 11 Jul 1982 (T. Gates), 1 Jun 1991 (M. Parmeter); Timber Hill, 17 Jul 1956 (G. Bolander); Duncan Mills, 25 May 1956(J. Kelly); Santa Rosa, 10 Jul 1962 (N. Mestechin); Sonoma, nested in 1961, 1963 (N. Mestechin), 11 Jul 1979 (L. Binford), in chimney; Austin Creek, 27 Jul 1983 (D. Beall); Two Rock, 13 Jul 1986 (R. Marlowe); Healdsburg, 22 Jul 1986 (J. Smith), 20 Jul 1990 (M. McCulley); Duncan's Landing, 17 Jun 1989 (R. Rudesill), in chimney; Monte Rio, 24 Jun 1989 (D. Willard); Stewart's Point, 25 May 1990 (B. Lenarz), in chimney; Dry Creek, 2 Jul 1990 (Bird Rescue Center), nestlings

Tehama Co.: Chico Meadows, 13 Jul 1962 (T. Rodgers); Elan Creek Campground, 15 Jul 1962 (E. Hodnette)

Trinity Co.: Waterman Ridge, 20 Jul 1982 (K. Rosenberg); Hayfork, 20 Jun 1995 (G. Hazard); Hyampom, 6 Jul–25 Aug 1995 (G. Hazard)

Tulare Co.: Colby Meadow, 7 Jul 1952 (P. Raven); Hogietown Picnic Area, 7 Jul 1973 (A. Baldridge); Log Meadow, 6 Jul 1974 (D. DeSante), nest in tree, 9 Jul 1979 (L. Norris), 11 Jul 1985 (J. Boone); near Badger, 19 Jun 1975 (R. Hansen); Park Ridge Lookout, 18 Jun 1980 (L. Norris); Big Stump, 2 Aug 1982, 3 Jun–30 Jul 1985, 4–11 Jun 1986, 19 Jul 1987 (J. Warner); Potwisha Campground, 10 Jun–1 Aug 1984, 31 Jul 1985 (J. Boone); Wolverton area, 12 Jun 1984 (J. Boone); Crescent Meadow, 26 Jun 1984 (G. San Miguel), 25 Jul 1986 (D. Graber); Moro Rock, 4 Jul 1984 (J. Boone); Ash Mountain, 17 Jun 1985 (L. Norris); Grant Grove, 28 Jun 1985, 16 Jul 1987, 14 Jul 1988 (G. San Miguel); Lodgepole, 30 Jun 1985 (J. Boone); Pine Camp, 30 Jun 1985 (G. San Miguel); Big Baldy Trail, 7 Jul 1985 (G. San Miguel); Wolverton Meadow, 18 Jun 1986 (J. Boone), 2 Aug 1988 (J. Warner), 24 Jun 1989 (G. San Miguel); Redwood Saddle, 10–11 Jun 1988 (G. San Miguel); South Fork Campground, 12 Jun–6 Aug 1988 (T. Jeffrey); Dorst Creek, 6 Jun 1990 (G. San Miguel)

Tuolumne Co.: Crane Flat, Jun–Jul 1971, 8 Jul 1973 (M. Mans), 1 Jul 1974 (no observer), 9–28 Jul 1985 (J. Lovio), 9 Jun 1986 (P. Metropulos), 20 Jun 1986, 26 Jun 1987 (D. Suddjian); Hodgdon Meadow, 27 Jun 1982 (Keeler); Harden Flat, 21 Jul 1988 (R. Erickson)

Yuba Co.: W of Yuba Pass, 16 Jun 1973 (no observer); Yuba Summit, 12 Jun 1976 (J. Richmond)

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THE PRINCE OF WALES SPRUCE GROUSE: A NEW SUBSPECIES FROM SOUTHEASTERN ALASKA

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The Spruce Grouse (*Falcipennis canadensis*; see below for use of generic name) consists of two groups of subspecies, those with white-tipped upper tail coverts and lacking a chestnut tail band (the *franklinii* group) and those without white tipping but with a chestnut tail band (the *canadensis* group, see Figure 1). The first group, up to now composed of only the subspecies *franklinii*, was until recently represented from Alaska by only a single museum specimen, an adult female taken by Wilfred H. Osgood on Prince of Wales Island in the Alexander Archipelago on 27 May 1903 (unpublished data in Smithsonian Institution archives). A second specimen, a male, was taken on the island by Paul Coffey on 14 September 1982.

In 1993 Gustafson, with the help of other biologists, assembled a series of five additional specimens. These included an adult female struck by a car on Prince of Wales Island on 22 June 1993, a subadult male collected there on 12 June 1993, an adult female collected on Heceta Island on 9 June 1993, and two males, one adult and one subadult, taken by a hunter on adjacent Kosciusko Island in the spring of 1990. The last were retrieved from a taxidermy shop in Ketchikan, Alaska.

These five specimens were prepared at the American Museum of Natural History, New York, three as round skins and two as "shmoos" and full skeletons. These five, plus the two earlier specimens, Dickerman compared with a small series of recently taken males (1958 to 1984) from elsewhere in the range of *franklinii* and large series of both sexes taken 1900–1923. This study revealed the archipelago birds to be a distinctive but unnamed form. Before describing it, we must digress to discuss the species' nomenclature and foxing.

NOMENCLATURE

We strongly agree with Yamashina (1939), Parkes (1952), Stepanyan (1962), Potapov (1986, not seen in the original), and Boag and Schroeder (1992) that the Spruce Grouse, long placed in its own genus, *Canachites*, is not congeneric with the Blue Grouse (*Dendragapus obscurus*), *contra* Short (1967), who was followed by the A. O. U. (1983). Yamashina (1939) made a strong argument, most of which was cited by Short (1967), that the Spruce Grouse is, instead, congeneric with the Siberian or Sharp-winged Grouse (*Falcipennis falcipennis*). The name *Falcipennis* Elliot, 1864, has priority over *Canachites* Stejneger, 1885. Short discussed the distinctness of the downy young of the Spruce Grouse with respect to those of the Blue Grouse and mentioned, but did not consider important, the difference in the

number of rectrices (16 in *Falcipennis* and *Canachites* vs. 18 in *Dendragapus*) or absence of inflatable esophageal sacs in *Falcipennis* and *Canachites*. We fully agree with Bendell and Zwickle (1984), cited by Zwickle (1992), that the Spruce and Siberian Grouse are forest-adapted members of the smaller-sized forest-grouse complex, which lacks esoph-

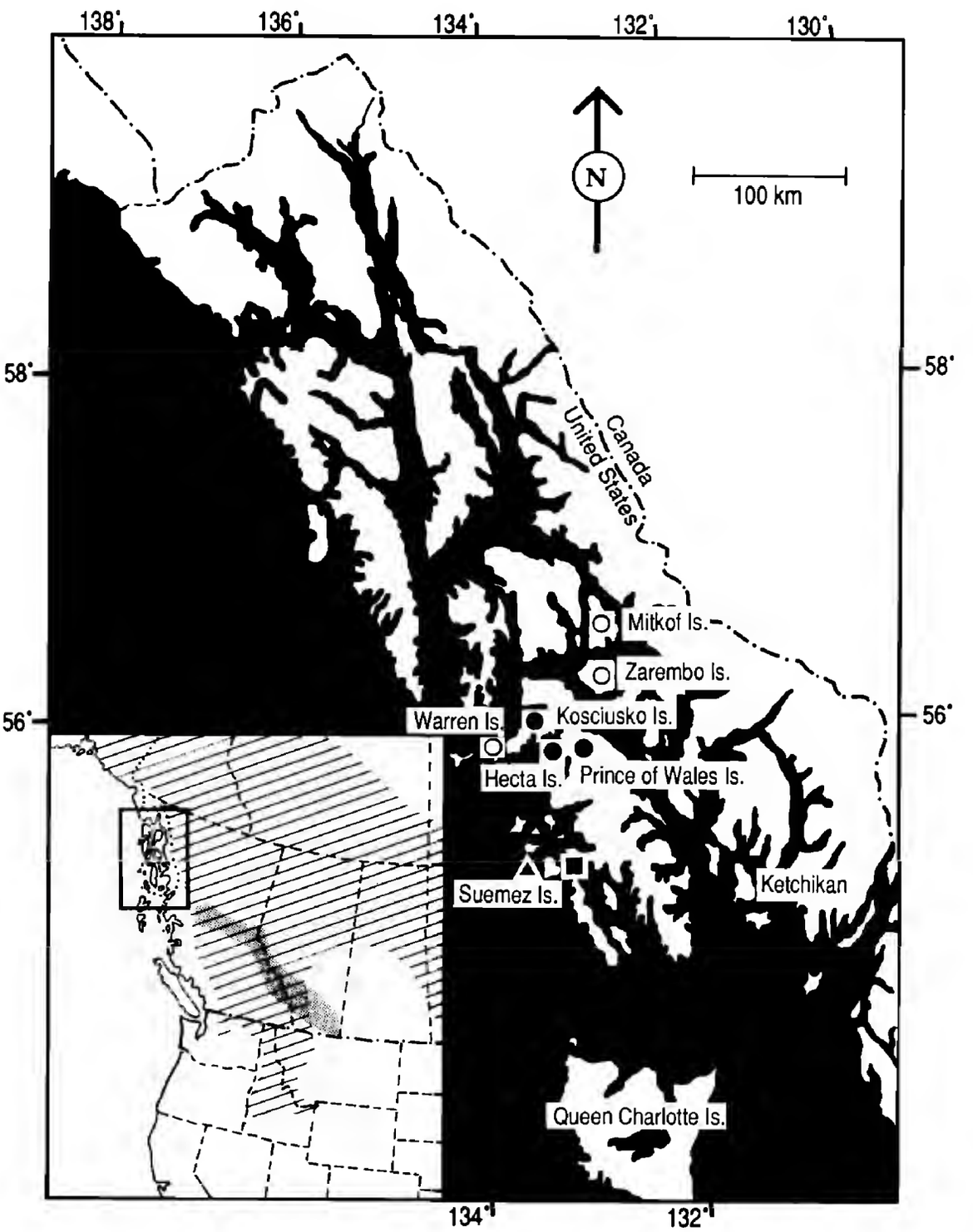

Figure 1. Range of the Spruce Grouse in western Canada and Alaska, showing range of *Falcipennis canadensis isleibi* and zone of intergradation between the *canadensis* and *franklinii* subspecies groups (inset). Solid dot, specimen record; open dot, sight record; triangle, bones; square, nest.

ageal air sacs for booming, while the Blue Grouse is a forest-adapted representative of the prairie/scrubland *Tympanuchus* complex, whose members are larger and have esophageal air sacs. Recent studies of grouse relationships using mitochondrial DNA confirmed the distinctness of *canadensis* and *obscurus* and placed the former in a clade with the Ruffed Grouse (*Bonasa umbellus*); however, grouse with esophageal air sacs did not form a monophyletic clade (Ellsworth et al. 1995).

FOXING

Postmortem plumage-color change, or foxing, is extensive in males of *F. canadensis* (insufficient females were seen for the extent of foxing among them to be assessed). Three 1981–1987 males of *F. c. franklinii* were compared with a large series taken from 1897 to 1914, and to three from the period 1958–1964. The older series is dramatically browner, in both the grays and the blacks, than the most recently taken birds, while even the 1958–1964 birds have foxed sufficiently that they differ consistently from the 1981–1987 series. Thus only the latter series was used in the color diagnosis. No recently taken females of *franklinii* were available. However, the three females from the Alexander Archipelago, all spring birds, are not consistently separable by color from a large series of older fall-taken *franklinii*.

DESCRIPTION

The Alexander Archipelago population may now be described as

Falcipennis canadensis isleibi new subspecies

Holotype. Adult male, American Museum of Natural History no. 830558; collected by Paul Coffey on 15 September 1982, near Little Naukati Bay, Prince of Wales Island (55° 52′ N, 133° 13′ W), southeastern Alaska; prepared by Daniel D. Gibson (DDG 819). Formerly no. 4282, University of Alaska Museum.

Diagnosis. Most similar to *F. c. franklinii*, but with shorter wings and longer tail (Table 1). Males darker, more olive, less clear gray on the dorsum and flanks; top of head darker, more sooty. White tips of the long upper tail coverts dramatically narrower than in *franklinii* (<5 mm wide vs. 6–11 mm, see Figure 2). Available females do not differ consistently from *franklinii* except in size. Other subspecies of the Spruce Grouse lack white on the upper tail coverts and have a chestnut band at the tip of the tail (Figure 1).

Etymology. This subspecies is named in honor of the late Malcolm E. (Pete) Isleib, outstanding birdwatcher, collector, contributor to our knowledge of the Alaskan avifauna, and friend to the Alaskan ornithological community. We suggest as a common name "Prince of Wales Spruce Grouse," to reflect much of the known range of the new taxon.

Discussion. One female is distinctly darker and more richly ochraceous than any fall female *franklinii* examined, but the other two females are more worn and faded and match mainland birds. Two females, taken 9 and 22

June 1993, were both molting heavily on the brood patch. Thus the characteristics of fresh-plumaged females of *isleibi* await determination. An immature male (white tipping on several rectrices) taken 12 June was in non-breeding condition, with testes measuring only 2 × 3 mm, and was in light body molt.

All four males (both adults and first-year birds) have traces of chestnut in the tips of the outer rectrices (Figure 2). Thus in this character and in the narrowness of the white tips of the upper tail coverts *isleibi* resembles Spruce Grouse found elsewhere only in the zone of intergradation between *canadensis* and *franklinii*.

In view of the abundance of taxa endemic to the area of the Queen Charlotte Islands and the Alexander Archipelago, it is surprising the Spruce Grouse population, known since 1903, has not been described previously. Four minor anecdotal accounts (Osgood 1903, 1905, Swarth 1911, Gabrielson and Lincoln 1959) refer to the occurrence of the species in the archipelago on Warren and Zarembo islands as well as on Prince of Wales Island.

The Spruce Grouse is absent from the Queen Charlotte Islands of British Columbia to the south and from most, if not all, of the adjacent mainland to the east (Swarth 1911, Boag and Schroeder 1992).

In 1992 Gustafson began efforts to document the range of this population. He compiled information on recent sight records on Prince of Wales Island and obtained the birds from Kosciusko and Heceta islands. On Suemez Island, beneath a Northern Goshawk (*Accipiter gentilis*) nest, he found avian keels that were identified as Spruce Grouse remains (D. D. Gibson pers. comm.). On Suemez Island, a nesting female Spruce Grouse with six eggs was found by foresters on 11 May 1993, in an area of proposed logging. Peter J. Walsh (pers. comm.) saw a Spruce Grouse on Mitkof Island on 17 December 1989. The species probably occurs on other islands in the southern portion of the Alexander Archipelago.

Table 1 Wing Chord and Tail Lengths (mm) of Two Subspecies of the Spruce Grouse, *Falcipennis c. franklinii* and *F. c. isleibi*

	Males		Females	
	Wing chord	Tail	Wing Chord	Tail
F. c. franklinii[a]				
Adults	183.6 ± 3.1 (11)	113.4 ± 3.6 (11)	179.5 ± 4.4 (8)	94.7 ± 2.3 (8)
Immatures	179.5 ± 4.1 (11)	102.0 ± 1.6 (4)	168.2 ± 6.6 (5)	89.3 ± 4.5 (5)
F. c. isleibi				
Adults	169 (type)	126, 128 (type)		
Immatures	169	114, 117		
Age unknown			168, 169, 170	98, 105

[a]Mean ± standard error (sample size). Data from Boag and Schroeder (1992).

Figure 2. Upperparts of males of the Spruce Grouse. Left, *F. c. canadensis*. Based on two adults, MSB 880, from Thomas Lake, 30 mi. NE of Ely, St. Louis Co., Minnesota, 19 December 1924, and MSB 679, from mile 50 along Richardson Highway, 150 mi. NE of Anchorage, Alaska, 3 September 1961. Middle, *F. c. isleibi*. Based on AMNH 830554, an adult, and 830555, an immature, both from Kosciusko Island, about 50 mi. SE of Ketchikan, Alaska, in fall 1991. Right, *Falcipennis canadensis franklinii*. Based on two adults, UWBM 36214, from Skull and Crossbones Ridge, Okanogan Co., Washington, November 1981, and UWBM 50206, from Freezeout Ridge, 9 mi. W and 7.5 mi. N of Conconully, Okanogan Co., Washington, 27 August 1987

Watercolor by Mike Ramos

Spruce Grouse are recognized as poor long-distance flyers. In the Great Lakes, for example, there is no evidence the species has occurred on Isle Royale or other islands more than a mile from the mainland. The islands on which it is found, such as Drummond Island in Lake Huron, lie 1 mile or less offshore (Ammann 1963).

Of the southeastern Alaska islands known to support *F. c. isleibi*, only Warren and Mitkof are separated by more than 1 mile from Prince of Wales, the apparent core of the population. Notably, Prince of Wales is larger than Graham Island in the Queen Charlotte Archipelago, and it is in size second only to Kodiak among the islands of Alaska. Except for its linkage to Zarembo Island via a series of smaller islands, Prince of Wales Island is isolated from the next nearest mainland connection by nearly 4 miles of salt water while Zarembo is separated from other islands in the direction of the mainland by 2 or more miles. The waters separating Zarembo and Prince of Wales from the mainland are shallow, and a land bridge could have existed during the Pleistocene. A femur of a bear, probably a Grizzly (*Ursus arctos*), dated to 35,365 ± 800 years before present and an incisor of a marmot (*Marmota* sp.) dated to over 44,500 years before present have recently been reported from Prince of Wales Island (Heaton 1995). These mammals have been lacking from the island in historic times. Consequently, it is possible that this relict population of *F. canadensis* has been isolated since the late Pleistocene, and it might be that the unglaciated islands were the refugium from which the species expanded to the mainland during periods of low sea-water levels and from which paler *franklinii*, adapted to the drier interior slopes, evolved.

SUMMARY

The Spruce Grouse of Prince of Wales and nearby islands in the Alexander Archipelago in southeastern Alaska constitute a subspecies agreeing with *F. c. franklinii* and differing from other subspecies of *F. canadensis* in its having white-tipped upper tail coverts and lacking a chestnut tail band. The new form, *F. c. isleibi*, differs from *franklinii* in its shorter wing and longer tail; males differ by their darker, more olive upperparts and flanks and narrower white tips on the upper tail coverts. Because of its 16 rather than 18 or 20 rectrices, lack of inflatable neck sacs, and different color pattern of the downy young, the Spruce Grouse is better placed in *Falcipennis* than in *Dendragapus*.

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of the University of Alaska Museum, Fairbanks, for exchanging the adult male, our type specimen, for an immature male and an adult female. Daniel D. Gibson, Kenneth C. Parkes, and Paul A. Johnsgard provided useful comments during the development of the manuscript. Dr. Parkes and Robin Panza provided data on specimens from the zone of intergradation between *canadensis* and *franklinii* in the Carnegie Museum of Natural History. Beth Dennis made the map.

LITERATURE CITED

Ammann, G. A. 1963. Status of the Spruce Grouse in Michigan. J. Wildlife Mgmt. 27:591–593.

American Ornithologists' Union. 1983. Check-list of North American Birds, 6th ed. Am. Ornithol. Union, Lawrence, KS.

Bendall, J. F., and Zwickle, F. C. 1984. A survey of the biology, ecology, abundance and distribution of the Blue Grouse (genus *Dendragapus*). Int. Grouse Symp., World Pheasant Assoc., Proc. 3:163–190.

Boag, D. A., and Schroeder, M. A. 1992. Spruce Grouse, in The Birds of North America (A. Poole, P. Stettenheim, and F. Gill, eds.), no. 5. Acad. Nat. Sci., Philadelphia.

Ellsworth, D. L., Honeycutt, R. L., and Silvy, N. J. 1995. Phylogenetic relationships among North American Grouse inferred from restriction endonuclease analysis of mitochondrial DNA. Condor 97:492–502.

Gabrielson, I. N., and Lincoln, F. C. 1959. Birds of Alaska. Wildlife Mgmt. Inst., Washington, D.C.

Heaton, T. H. 1995. Middle Wisconsin bear and rodent remains discovered from Prince of Wales Island, Alaska. Current Research in the Pleistocene 12: in press.

Osgood, W. H. 1905. In Alaska's rain belt. Condor 7:68–71.

Parkes, K. C. 1952. The birds of New York and their taxonomy. Ph. D. dissertation, Cornell Univ., Ithaca, N. Y.

Potapov, R. L. 1985. Fauna of the USSR: Birds, vol. III. Order Galliformes, family Tetraonidae. Science Inst., Leningrad (in Russian).

Short, L. L., Jr. 1962. A review of genera of grouse (Aves, Tetraoninae). Am. Mus. Novitates 2289.

Stepanyan, L. S. 1962. [The systematic relationships between the Sharp-winged Grouse and the Spruce Grouse.] Ornitologiya 5:368–371 (in Russian).

Swarth, H. S. 1911. Birds and mammals of the 1909 Alexander Alaska Expedition. Univ. Calif. Publ. Zool. 7:9–172.

Yamashina, Y. 1939. Note sur le tétras falcipenne de Sibérie. Oiseau Rev. Fr. Ornithol., N. S., 9:3–9.

Zwickle, F. C. 1992. Blue Grouse, in The Birds of North America (A. Poole, P. Stettenheim, and F. Gill, eds.), no. 15. Acad. Nat. Sci., Philadelphia.

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FALL MIGRATION OF TURKEY VULTURES AND RAPTORS THROUGH THE SOUTHERN SIERRA NEVADA, CALIFORNIA

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The migration of Turkey Vultures (*Cathartes aura*) is not nearly as well studied as that of many species of raptors. Raptor migration counts are conducted annually at numerous locations throughout North America (Kerlinger and Gauthreaux 1985, Heintzelman 1986, Kerlinger 1989). Count sites are generally located along mountain ridges or coastlines where migrating raptors congregate (Kerlinger and Gauthreaux 1985, Kerlinger 1989). Both raptors and vultures migrate by day, taking advantage of thermal updrafts. However, sites that provide good conditions for migrating raptors, or for raptor viewing, do not necessarily provide optimal conditions for migrating vultures. Indeed, large flights of migrating vultures (i.e., >5000 individuals) are rarely recorded at hawk-watch sites.

In southern California, Turkey Vultures are known to migrate in large numbers through the Mojave Desert during spring and fall (Jaeger 1981, Rosenberg et al. 1991). Fall counts of Turkey Vultures migrating southeast from Victorville, San Bernardino Co., have recorded in excess of 10,000 individuals per season (Watkins 1976, Yurkunas 1994). Spring counts (February through April) at Victorville yielded only one tenth of this number (Watkins 1976). A similar pattern appears to prevail in the Kern River Valley (S. Laymon pers. comm.). Migration in spring appears to be more protracted and much lower in magnitude than in fall.

The migratory route of vultures has been mapped from the Mojave River in the vicinity of Victorville to Blythe, Riverside Co., along the Colorado River (Watkins 1976). However, little else is known of the magnitude of Turkey Vulture migration in the western United States. Here we document the largest known Turkey Vulture flyway north of Mexico and report observations of migrating raptors during fall 1994.

STUDY SITE

Our count site is located 8 km (5 miles) south of Weldon, Kern Co., California, at the southern terminus of the Sierra Nevada. The site (elevation 900 m; 2950 feet) is just west of Kelso Creek on a low rise at a point where the valley narrows in width to 1 km (0.6 mile) from 4 km (2.5 miles) at the mouth. Kelso Creek runs southeast–northwest into the South Fork Kern River (elevation 800 m; 2650 feet) and is bordered by two desert mountain ranges, the Scodie Mountains on the east and the Piute Mountains on the west. The South Fork Kern Valley is bisected by extensive cottonwood/willow riparian forest bordering the South Fork Kern River. The forest is surrounded by agricultural lands and desert mountains. The forest provides roosting sites for a large percentage of the migrating Turkey Vultures that pass the count site.

METHODS

We conducted counts daily from 7 September through 26 October 1994 (except 9–10 September and 22–23 October). Observations commenced between 08:30 and 10:00 PST and lasted from three to six hours depending on the intensity of the vulture movement and availability of observers. From 7 to 30 September observations ended about 12:00 when migration activity appeared to cease; however, on 1 October a second wave of activity was observed in early afternoon. Subsequent observations (1 to 26 October) were conducted until the afternoon wave ceased, generally between 14:00 and 15:00.

We made our counts from a single station. From the count site we had a nearly 360-degree view of the surrounding desert and mountains. At least two observers were present during all observations. Both observers actively located and counted vultures, but only one observer recorded data. Observers frequently communicated the location, activity, and numbers of vultures seen. Vultures were typically first spotted in kettles forming to the north of the count site. We attempted to keep track of the kettles as they dispersed and re-formed before recording them. Kettles were observed until individuals began to "break out" and glide past the count site. Because vultures frequently break out of kettles individually and in single file, it is often possible to obtain exact counts. When kettles drifted past the count site or when large numbers of individuals broke out simultaneously, passing in a broad front, we estimated by groups of ten. In nearly all cases, all birds were counted or estimated by both observers, who then agreed on the number to be recorded. Time of passage was recorded for all individuals or groups. Temperature, estimated wind speed, wind direction, and percent cloud cover were recorded at the beginning and end of each observation period.

We recorded observations of raptors in the same manner as those of vultures. We assessed whether individual raptors were residents or migrants by noting flight behavior and direction. Only raptors that we considered migrants were recorded.

RESULTS

We recorded 27,415 Turkey Vultures during 46 days (162.5 hours) of observations, averaging 596 vultures/day (169 vultures/hour). A high count of 4521 Turkey Vultures was recorded on 7 October following three days of inclement weather, characterized by strong, gusty winds, high cloud cover, light rain, and few vultures. The second highest count (3694 individuals) was on 2 October immediately before the passage of this front. The median migration date, calculated from daily vulture totals, was 1 October. Peak activity occurred during the 7-day period from 29 September to 5 October when 37% (10,228) of all vultures were recorded (Figure 1).

We recorded 328 raptors of 13 species and 12 unidentified individuals. Red-tailed Hawks (*Buteo jamaicensis*) and Cooper's Hawks (*Accipiter cooperii*) were the most commonly observed migrants, accounting for 33% (108) and 32% (105), respectively, of all raptors identified. Sharp-shinned Hawks (*Accipiter striatus*) (9.5%; 31) and American Kestrels (*Falco*

sparverius) (9%; 30) were the next most abundant. The remaining nine species, accounting for 16% of the total, included the Northern Harrier (*Circus cyaneus*) (13 from 13 September to 17 October), Prairie Falcon (*Falco mexicanus*) (11 from 2 to 26 October), Osprey (*Pandion haliaetus*) (9 from 19 September to 11 October), Ferruginous Hawk (*Buteo regalis*) (5 from 30 September to 24 October), Golden Eagle (*Aquila chrysaetos*) (5 on 8 October), Northern Goshawk (*Accipiter gentilis*) (5 from 30 September to 24 October), Swainson's Hawk (*Buteo swainsoni*) (4 from 11 to 30 September), and a single Peregrine Falcon (*Falco peregrinus*) on 20 October. Notable species were the Northern Goshawk, previously undocumented as a migrant in the region (S. Laymon pers. comm.), and a single Zone-tailed Hawk (*Buteo albonotatus*) on 3 October, only the second reported for Kern County (M. Heindel pers. comm.; record currently being considered by the California Bird Records Committee). Raptors averaged 2.0 per hour. We detected no seasonal peak in activity. However, raptors tended to migrate in pulses; on 11 days no raptors were recorded, while on four days 20 or more were recorded. Of the four most commonly recorded species only the Sharp-shinned Hawk revealed a distinct seasonal trend, increasing sharply in early to mid-October (Figure 2). High counts of raptors were 26 (6 species) on 7 October and 24 (5 species) on 11 October.

DISCUSSION

Although the exact route used is unknown, anecdotal observations suggest that large numbers of fall-migrant vultures in California follow the west side of the Sierra Nevada (east side of the Central Valley) before passing through the Mojave Desert. Published reports of migrating vultures in fall include 2500 to 3000 counted in 30 minutes over Springville, Tulare Co., on 29 September 1965 (Chase 1966); 1000 at Chico, Butte Co., on 28

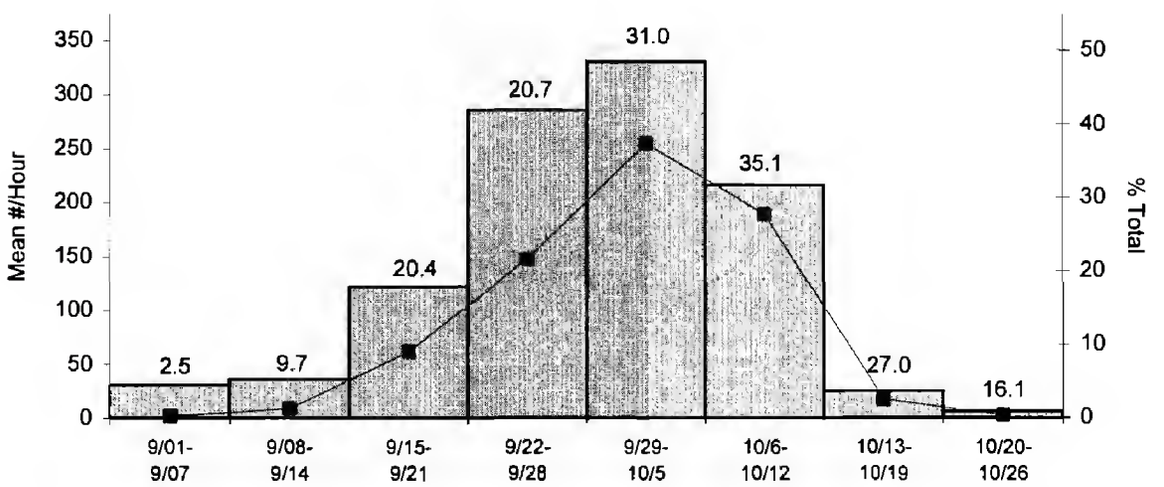

Figure 1. Seasonal timing of Turkey Vulture migration through the Kern River Valley, California, in fall 1994, expressed as mean number of vultures recorded per hour (bars) and percent total (line) by 7-day period. Total number of hours of observation per 7-day period is shown above bars.

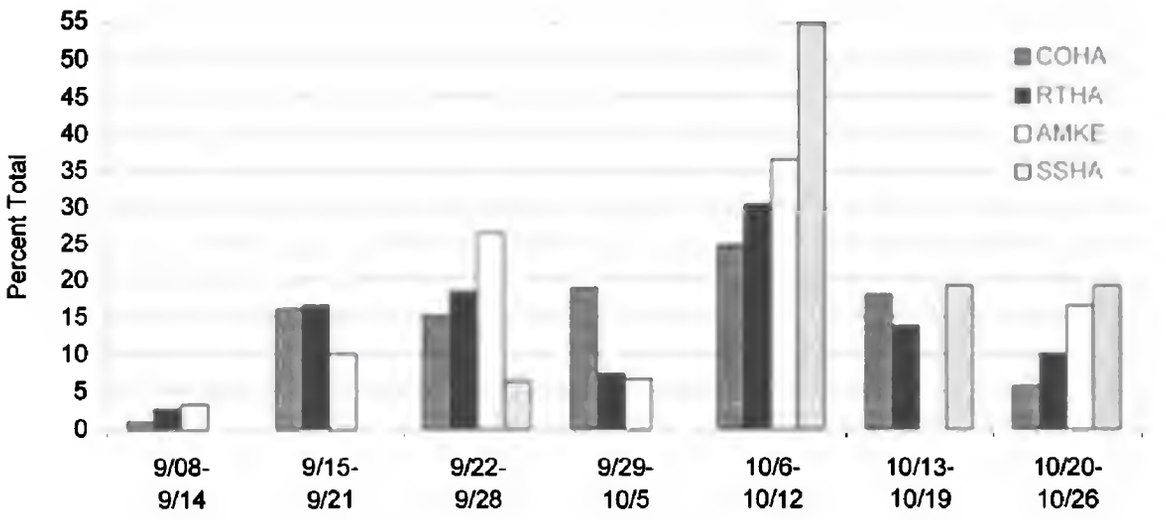

Figure 2. Seasonal distribution of the four most commonly recorded raptors migrating through the Kern River Valley, California, in fall 1994, expressed as percent total by 7-day period. COHA, Cooper's Hawk; RTHA, Red-tailed Hawk; AMKE, American Kestrel; SSHA, Sharp-shinned Hawk.

September and hundreds in Fresno Co. on 3 and 4 October 1972 (DeSante and Remsen 1973); and 100+ at various locations from Chico to Fresno Co. from 15 September through 5 October 1973 (Remsen and Gaines 1974). Flocks of up to 500 a day in late September and early October regularly roost near Porterville, Tulare Co. (B. Barnes pers. comm.).

Once vultures reach the desert, known suitable nocturnal roost sites are limited to riparian forests. The riparian forest along the South Fork Kern River is the last large patch of suitable roosting habitat available to vultures before they migrate out over the desert. The next known major roost site is along the Mojave River, in the vicinity of Victorville, approximately 160 km (100 mi) to the southeast (Watkins 1976, Jaeger 1981). The Kern River Valley lies directly in the path of vultures as they migrate down the west side of the Sierra Nevada toward the Mojave River. Once vultures have reached the Kern River Valley the most direct route to the Mojave Desert is southeast along Kelso Creek. The Scodie and Piute mountains appear to act as leading lines, funneling migrating vultures southeast along Kelso Creek toward the Mojave River.

To our knowledge, the Turkey Vulture migration through the Kern River Valley is the largest documented north of Mexico. We were able to locate reports of only three sites in the United States and Canada that regularly record more than 5000 Turkey Vultures per season. Observers at Michigan's Lake Erie Metro Park reported an 8-year average of 10,767 Turkey Vultures per season and in 1993 recorded an all-time high of 21,720 vultures (Benoit 1994). Observers at Holiday Beach, Ontario, reported a 20-year high count of 16,692 in 1991 (Latta 1994). In the western United States, the Mojave Desert Raptor Watch has recorded a high of 12,238 Turkey Vultures migrating over Apple Valley, near Victorville (Yurkunas 1994).

We believe that most of the vultures recorded at Apple Valley are those that have previously passed through the Kern River Valley. The timing of

peak numbers at the Mojave River roosts near the Apple Valley count site coincides closely with peak movement past our site (Watkins 1976, Yurkunas pers. comm.). These roost sites lie directly along the route vultures travel when leaving the Kern River Valley. Watkins (1976) stated that fall migrants follow the San Joaquin Valley then pass over the Tehachapi Mountains before roosting along the Mojave River in the vicinity of Victorville. However, he was apparently unaware of the movement through the Kern River Valley and did not observe fall migrants before they reached the Mojave River roosts. Although some vultures certainly do continue south through the Central Valley and around the southern end of the Sierra Nevada our data suggest that the vast majority leave the Central Valley, crossing over the west edge of the Sierra and into the Kern River Valley.

Our observations early in the season were limited to the morning hours; hence it is likely that 5000 to 10,000 vultures may have passed unrecorded. With more intensive coverage we believe as many as 40,000 vultures may be recorded annually from this location. Additional count sites located in the Central Valley and Transverse Ranges (e.g., near Bakersfield and Tehachapi) are necessary to determine the number of migrating vultures that continue moving southward through the Central Valley, passing over the Tehachapi Mountains instead of crossing into the Kern River Valley. The large number of Turkey Vultures that pass through the Kern River Valley probably represents a significant portion of the vulture population in the Pacific Northwest, west of the Cascade–Sierra Nevada axis, making this a prime location for monitoring long-term trends in vulture numbers in the West.

SUMMARY

Turkey Vultures and raptors use the valley of Kelso Creek, Kern County, California, as a fall migration route, after roosting in the riparian forest along the South Fork Kern River. From 7 September to 26 October 1994 we counted 27,415 Turkey Vultures, the largest flight yet recorded in the United States. The South Fork Kern River and Kelso Creek appear to lie along a flyway leading from the east side of the Central Valley to the Mojave River near Victorville, previously found to be a major roost site for migrating vultures. The flyway is also used by raptors (328 of 13 species counted over the same period as the vultures), including a few Northern Goshawks.

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We thank the many volunteers who participated in the project. We especially thank Terri Middlemiss, who organized most of the volunteer effort and spent many days counting vultures. Stephen Laymon and Pamela Williams generously allowed Rowe time off from other duties and provided advice throughout the project. Bob Barnes, Stephen Laymon, Amadeo Rea, Philip Unitt, and Pamela Williams provided helpful comments on earlier drafts of this manuscript. This is Contribution No. 1 of the Kern River Research Center.

LITERATURE CITED

Benoit, D. 1994. Eastern Great Lakes Region. Hawk Migration Association of North America. Hawk Migration Studies 20:46–49.

Chase, T., Jr. 1966. The fall migration. Middle Pacific Coast region. Audubon Field Notes 20:88.

DeSante, D., and Remsen, V. 1973. The fall migration. Middle Pacific Coast region. Am. Birds 27:114.

Jaeger, E. C. 1981. Desert Wildlife. Stanford Univ. Press, Stanford, CA.

Heintzelman, D. S. 1986. The Migrations of Hawks. Indiana Univ. Press, Bloomington.

Kerlinger, P. 1989. Flight Strategies of Migrating Hawks. Univ. of Chicago Press, Chicago.

Kerlinger, P., and Gauthreaux, S. A., Jr. 1985. Flight behavior of raptors during spring migration in south Texas studied with radar and visual observations. J. Field Ornithol. 56:394–402.

Latta, W. C. 1994. Trends in abundance of fall migrating raptors at Holiday Beach Migration Observatory, Essex County, Ontario, 1977–93. Hawk Migration Association of North America. Hawk Migration Studies 20:7–11.

Remsen, V., and Gaines, D. A. 1974. The fall migration. Middle Pacific Coast region. Am. Birds 28:100.

Rosenberg, K. V., Ohmart, R. D., Hunter, W. C., and Anderson, B. W. 1991. Birds of the Lower Colorado River Valley. Univ. of Ariz. Press, Tuscon.

Watkins, T. J. 1976. Turkey Vulture migrations in the Mojave Desert of California. M.S. Thesis, Calif. Polytechnic Univ., Pomona.

Yurkunas, V. G. 1994. Mojave Desert raptor watch. Hawk Migration Association of North America. Hawk Migration Studies 20:11–12.

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NOTES

A WINTER RECORD OF THE GRAY VIREO FROM SAN LUIS POTOSI, MEXICO

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The Gray Vireo, *Vireo vicinior*, winters mainly in coastal Sonora (including Tiburón and San Esteban islands) and sparsely in southern Baja California, southern Arizona (mountains of Yuma and western Pima counties), the Big Bend region of western Texas, and probably southwestern Coahuila (Phillips et al. 1964, Barlow and Wauer 1971, AOU 1983, Phillips 1991, Howell and Webb 1995). We report here a recent record of the Gray Vireo from the state of San Luis Potosí, México, and suggest that the winter distribution of the Gray Vireo may be more widespread than is currently recognized.

On 29 November 1994, along Mexico Highway 80, 30 km by road east-southeast of El Huizache (approximately 22° 50′ N, 100° 30′ W), elevation 1220 m, we collected an adult male Gray Vireo. The bird weighed 14.9 grams and had a wing chord of 68 mm. The bird was in good condition with light fat and heavy molt on the head and body; the skull was completely pneumatized. This specimen (catalog number 11999 MZFC) is housed at the Museo de Zoología, Mexico City. The habitat was typical Chihuahuan desert as described by Atwood (1988) and Toledo and Ordoñez (1993) and seemed to be suitable wintering habitat for the Gray Vireo (but see Bates 1992). This locality was a Black-tailed Gnatcatcher *(Polioptila melanura)* collecting site of Atwood's (1988), and we found that species here as well.

There exists a single Mexican specimen of the Gray Vireo from south or east of Sonora, a bird (USNM 164057) taken at Inde, Durango, on 13 August 1898. An additional specimen from Quelite, Sinaloa, collected 6 February 1934, was apparently misidentified (Phillips 1991).

The San Luis Potosí specimen is thus the southernmost and easternmost of the Gray Vireo for Mexico. This seemingly anomalous specimen may represent a broader, though more local (Phillips 1991), winter distribution than is currently recognized. It is possible that some eastern Gray Vireos breeding in the Chisos Mountains (Texas) and Sierra Del Carmen (Coahuila, Mexico) may winter as far south as San Luis Potosí. The sight record of a Gray Vireo in southwestern Coahuila on 22 November (cited in Phillips 1991) may also represent this heretofore unknown winter range.

Suitable (see Bates 1992) arid and semiarid habitats on the central Mexican plateau, particularly from Texas and New Mexico south to San Luis Potosí, Zacatecas, and Durango (see discussion of habitats in Toledo and Ordoñez 1993) should be considered as a possible winter range extension for the Gray Vireo. Further documentation with additional specimens is required.

Our field work was supported by National Science Foundation grant DEB9317945 to R. M. Zink and a Frank M. Chapman Memorial Fund award to Fry. John M. Bates, Jon C. Barlow, and Steve N. G. Howell provided valuable comments.

LITERATURE CITED

American Ornithologists' Union. 1983. Checklist of North American Birds. Am. Ornithol. Union, Lawrence, KS.

Atwood, J. L. 1988. Speciation and geographic variation in Black-tailed Gnatcatchers. Ornithol. Monogr. 42.

Barlow, J. C., and Wauer, R. H. 1971. The Gray Vireo (*Vireo vicinior* Coues; Aves: Vireonidae) wintering in the Big Bend region, west Texas. Can. J. Zool. 49:953–955.

Bates, J. M. 1992. Frugivory on *Bursera microphylla* (Burseraceae) by wintering Gray Vireos (*Vireo vicinior*, Vireonidae) in the coastal deserts of Sonora, Mexico. Southwest. Nat. 37:252–258.

Howell, S. N. G., and Webb, S. 1995. A Guide to the Birds of Mexico and Northern Central America. Oxford Univ. Press, Oxford, England.

Phillips, A. R., Marshall, J. T., and Monson, G. 1964. The Birds of Arizona. Univ. Ariz. Press, Tucson.

Phillips, A. R. 1991. The Known Birds of North and Middle America, part 2. A. R. Phillips, Denver.

Toledo, V. M., and Ordoñez, M. J. 1993. The biodiversity scenario of Mexico: A review of terrestrial habitats, in Biological Diversity of Mexico: Origins and Distribution (T. P. Ramamoorthy, R. Bye, A. Lot, and J. Fa, eds.), pp. 757–777. Oxford Univ. Press, Oxford, England.

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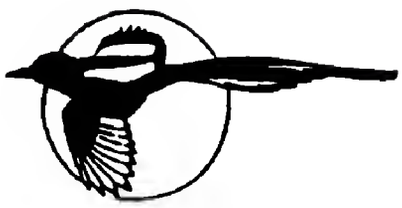

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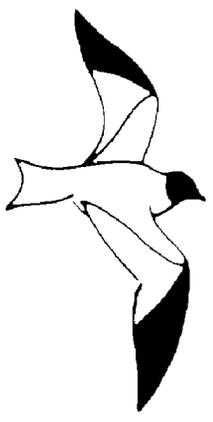

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WESTERN BIRDS

Volume 27, Number 2, 1996

IDENTIFICATION AT SEA OF COOK'S, DE FILIPPI'S, AND PYCROFT'S PETRELS

STEVE N. G. HOWELL, SOPHIE WEBB, and LARRY B. SPEAR, Point Reyes Bird Observatory, 4990 Shoreline Highway, Stinson Beach, California 94970

Petrels of the genus *Pterodroma* are notorious for being difficult to identify at sea. Among the most problematic species are Cook's (*P. cooki*), de Filippi's (*P. defilippiana*) and Pycroft's (*P. pycrofti*) petrels, the three most similar of those small *Pterodroma* united in the subgenus *Cookilaria*. P. defilippiana has also been called Defilippe's Petrel (Roberson and Bailey 1991) or Masatierra Petrel (Harrison 1983, 1987). "Defilippe's" is an anglicization of *defilippiana*, but as Giglioli and Salvadori (1869) named the bird for Professor F. de Filippi, the correct English spelling should be "de Filippi's Petrel."

Cook's Petrel breeds from October to April on islands off New Zealand and migrates to the northern and eastern Pacific, where nonbreeding birds occur mostly from April to November in the Peru Current, the California Current, and the North Pacific Convergence (Roberson and Bailey 1991, Spear et al. 1992). De Filippi's Petrel breeds from June to January on islands off central Chile and ranges at sea in the nearby Peru Current, south of the equator (Harrison 1987, Roberson and Bailey 1991, Spear et al. 1992). Pycroft's Petrel breeds from November to March on islands off New Zealand (Dunnet 1985), and until recently its nonbreeding distribution was unknown. It is now apparent that Pycroft's Petrel disperses into the tropical Pacific in waters of the Equatorial Countercurrent and South Equatorial Current between longitudes 99° 29′ W (July 1995; Howell) and 167° 45′ W at latitudes from 5° S to 18° N (Spear et al. 1992). Records to date are mainly from April to June but also from October to December, so some Pycroft's Petrels probably occur in this area throughout the year. While the occurrence in North American waters of de Filippi's and Pycroft's petrels seems unlikely, this cannot be assumed, and, unless identification characters are fully understood, the pelagic distributions of these forms will remain incompletely known. All three of these *Cookilaria* petrels share a gray

crown (concolorous with the back) and narrow black underwing margins. The identification criteria in Harrison (1983, 1987) were refined by Roberson and Bailey (1991), although the latter authors' experience with de Filippi's and Pycroft's petrels was limited to museum specimens. Spear et al. (1992) added first-hand identification data, confirmed by collecting specimens, and described these species' molt schedules: Cook's and Pycroft's molt their flight feathers from March to August, while de Filippi's molts from November to March. To the best of our knowledge these periods encompass the molts of both immatures and adults. Thus, Cook's and de Filippi's petrels molting their primaries can be identified readily to species, even in March, when the molting periods overlap, as a few de Filippi's Petrels are then replacing their outermost primaries while a few Cook's have dropped their innermost primaries. Molting birds characteristically exhibit conspicuous white patches, formed by exposed inner webs of the primaries, on the dorsal surfaces of the wings (Spear et al. 1992, figure 10b). During recent cruises in the eastern Pacific Ocean, Howell and Webb assessed the marks proposed by these authors for Cook's and de Filippi's petrels. Here we summarize our results and briefly discuss Pycroft's Petrel.

METHODS

We studied Cook's and de Filippi's petrels during cruises between California and Chile in March and April 1994 (northbound; Webb; 50 Cook's, 220 de Filippi's), April and May 1995 (northbound; Howell, Webb; 430 Cook's, 160 de Filippi's), and July and August 1995 (southbound; Howell, Webb; 135 Cook's, 40 de Filippi's, 1 Pycroft's). We did not observe Cook's and de Filippi's petrels together but saw both species within a few days of one another. Most birds were observed with 8-power binoculars at ranges of less than 300 m from the ship, many within 100 m, and ample time usually was available to double-check identification criteria. At ranges greater than 300 m, specific identification often was not possible without the aid of mounted 25 × 150 binoculars. Spear et al. (1992) summarized our cumulative previous experience with these species.

RESULTS AND DISCUSSION

The characters we looked at when confronted with a Cook's/de Filippi's Petrel were, as the bird approached, structure and flight manner, underwing pattern, dorsal tail pattern, face and neck pattern, and bill size.

Structure and Flight Manner

We did not find the differences in wing length [1.7% greater in Cook's, from measurements of Roberson and Bailey (1991)] or tail length (7.8% greater in de Filippi's) useful in distinguishing these two species, *contra* Roberson and Bailey (1991). At sea, variation due to molt, flight behavior, and wind speed often masks such small differences. Also, differences in proportion may evoke perceptions of the birds' shapes different from those implied by measurements alone.

Cook's impressed us as having narrower wings and a narrower, more rounded tail (Figure 1A) so that, relative to the narrow wings, the tail did not look short. De Filippi's looked broader-winged with a broader, wedge-shaped tail (Figure 1B–D) and so did not appear long-tailed. In heavy wing molt (April 1994, May 1995), Cook's Petrels often appeared narrower winged than usual such that the tail appeared long. Thus, on the first 1995 cruise we had the impression that Cook's was longer tailed than de Filippi's [and compare figures 3 and 7 of Roberson and Bailey (1991)].

In moderate to strong winds, the wings of both species appeared narrower and more pointed than in light winds or calm conditions, when they appeared broader and blunter-tipped. Birds taking off from or landing on the water, even in windy conditions, appeared broader-winged than during active flight. That wing shape changes with behavior and wind speed is often overlooked when slight structural differences are discussed in identification papers.

When Howell and Webb saw their first de Filippi's Petrels (in December 1992 off Valparaiso, Chile) they were struck by the birds' thickset shape and leisurely, buoyant flight, although they recognized the latter reflected a rather low wind speed. However, further experience revealed that flight manner is of little use for identification, the differences in flight between strong and slack wind conditions being greater than between species. In general, both species fly quickly in wheeling arcs in moderate to strong winds; more buoyantly, with a more leisurely, weaving progression, in light winds, and with bursts of fairly quick wingbeats and long, low, fairly level glides in near-calm conditions. Furthermore, molting Cook's (April) flew quickly, with rapid wingbeats and bounding glides, suggesting a Sooty Shearwater, but in similar wind conditions and in fresh plumage or with primary molt all but completed (July), they flew notably more buoyantly, less hurriedly.

While we agree with Roberson and Bailey (1991) that de Filippi's does appear relatively thickset, or "chunky" for a *Cookilaria* (*contra* Spear et al.

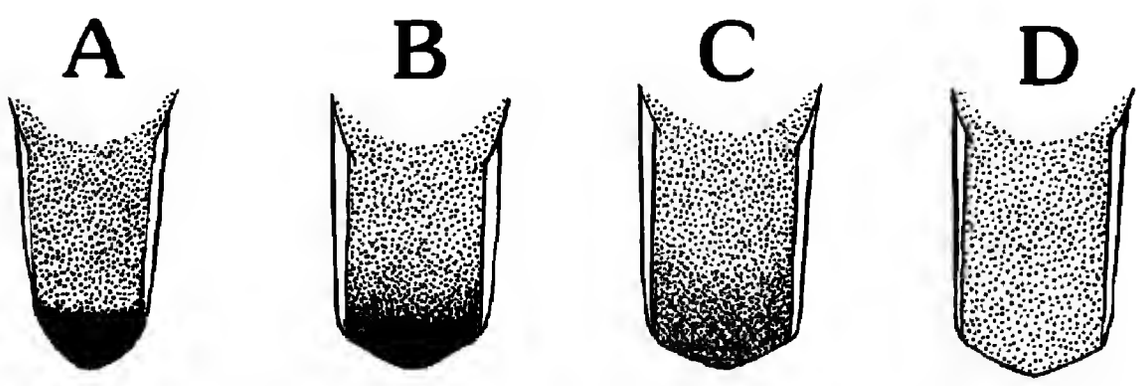

Figure 1. Shape and dorsal pattern of Cook's and de Filippi's Petrel tails. A, Cook's, narrower, more rounded, with black tip. B–D, de Filippi's, broader, more wedge-shaped. B, rare variant (1/100 birds) with blackish tip. C, uncommon variant (5/100 birds) with dusky tip. D, typical pattern of all-gray tail.

Sketch by Steve N. G. Howell

1992), evaluating this at sea can be difficult without considerable experience. Assessing flight manner is highly subjective and generally unreliable for specific identification.

Underwing Pattern

The width and extent of the black underwing margin was of no use for separating Cook's and de Filippi's petrels at sea, as surmised by Roberson and Bailey (1991). Because the human eye emphasizes contrast, at distances greater than 200 m the underwing margins often looked thicker than at close range (Figure 2), especially in bright, sunny (when the underwings were shadowed) and dull, overcast conditions. Then the black underwing margins of both species *appeared* wider than on Stejneger's Petrel (*P. longirostris*), even suggesting a Black-winged Petrel (*P. nigripennis*), although not as bold as the latter species. Therefore we urge caution in distinguishing Black-winged and Cook's petrels by apparent underwing pattern alone. At distances of less than 200 m it was easier to see the true underwing patterns. The black underwing margins of Cook's Petrels in fresh plumage (July) appeared bolder than the narrow and less distinct margins of birds in wing molt (April).

Dorsal Tail Pattern

Tail pattern has been proposed as a character for separating Cook's and de Filippi's petrels: Cook's has black-tipped central rectrices; de Filippi's has all-gray central rectrices (Roberson and Bailey 1991, Spear et al. 1992). We found this character not 100% reliable. While all Cook's Petrels showed a black tail tip (visible within 100 to 200 m, depending on light conditions;

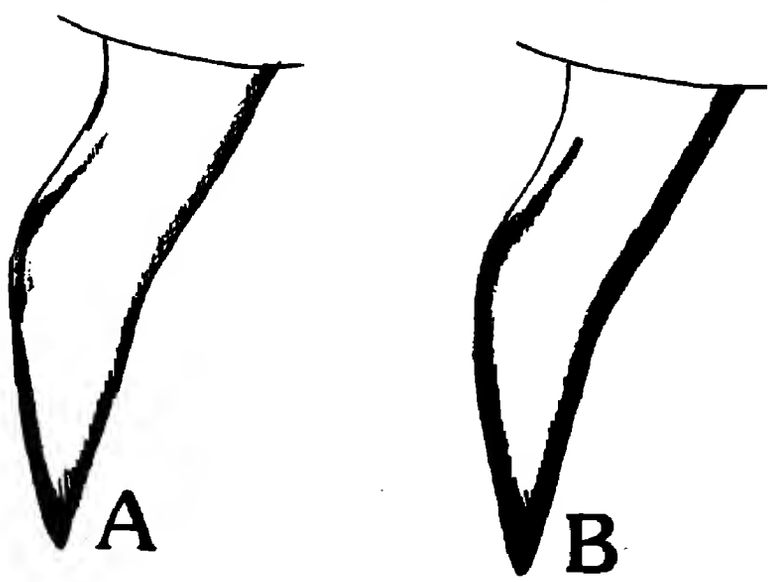

Figure 2. Underwings of Cook's and de Filippi's petrels. A, narrow black margins visible at close range (<150–200 m). B, illusion of thicker black margins sometimes apparent at moderate range (200–300 m).

Sketch by Steve N. G. Howell

Figure 1A), five de Filippi's Petrels in April and July 1995 (of 100 seen very well) showed a slightly contrasting, dusky gray tail tip (Figure 1C), and one (July 1995) showed a quite distinct blackish tail tip (Figure 1B). All of these atypical birds were studied at close range, often in direct comparison with other de Filippi's Petrels, and their overall structure, tail shape, diagnostic face and neck pattern (see below), and thick bill were seen clearly, convincing us the birds were not Cook's Petrels. However, from its black-tipped tail, we initially identified one July bird as a Cook's Petrel. The occasional darker tail tip on de Filippi's Petrel may be caused by wear.

The more extensive white in the outer rectrices of Cook's Petrel (Roberson and Bailey 1991) is of virtually no use in identification at sea under any but the most favorable conditions. In our experience, Cook's often held their tails closed so that the white was not very obvious, whereas on the broader tail of de Filippi's, white sides were usually quite apparent (e.g., figure 7 of Roberson and Bailey 1991). On a bird spreading its tail, when flushing from or alighting on the water, Cook's does show more extensive white in the tail than de Filippi's, although the moment is usually so brief that, unless captured by a photograph, there would be no time to confirm one's first impression.

Thus, while an all-gray tail appears to be diagnostic of de Filippi's Petrel, this species can, at least rarely, show a dusky or dark tail tip suggesting Cook's Petrel. As noted by Roberson and Bailey (1991), birds with very extensive white in their outer rectrices should be Cook's, but the amount of white is often difficult to ascertain at sea, and de Filippi's shows distinct white tail sides as often as Cook's.

Face and Neck Pattern, Bill Size

In a bird seen well, we found face and neck pattern, in combination with bill size, to be the best characters for separating Cook's and de Filippi's petrels at sea. At ranges greater than 150–200 m, however, it was difficult to distinguish these features without the aid of mounted 25-power binoculars. Face and neck pattern were best evaluated with a bird viewed in profile and/or from below but were also of use in dorsal views. Cook's Petrels have a gray cap whose contrast with the white lower face and neck sides varies, being most distinct in worn and/or backlit birds [e.g., figure 2 of Roberson and Bailey (1991)] and least distinct in birds in fresh plumage and/or direct sun. The eye always looked small and "beady" in the gray cap (with no apparent surrounding black eye patch), and the small slender bill was not striking (Figure 3A).

In contrast, de Filippi's Petrels have a distinct gray collar on the sides of the neck [suggesting a Black-winged Petrel; e.g., figure 8 of Roberson and Bailey (1991)]. The eye of de Filippi's appears large and set in a mascara-like black smudge, and the bill is strikingly thick. Thus, de Filippi's looks collared, with the eye patch and thick bill appearing as two equally large and bold black marks on the head (Figure 3B). Roberson and Bailey (1991) described the face/neck pattern difference in terms of de Filippi's having a white "cheek" curving up behind the auriculars in a short "half-collar"; this description is not inaccurate but may reflect specimen versus field experi-

ence. At sea, the gray neck collar stood out, not the white notch in the auriculars.

We disagree with Roberson and Bailey (1991) that "separation of the gray cap from the white lower face is not well-defined" in Cook's Petrel. At sea Cook's often looked distinctly capped unless the birds were in fresh plumage and the sun was behind the observers. Roberson and Bailey (1991) dismissed the larger eye patch of de Filippi's, first suggested by Harrison (1987), as a function of plumage wear, worn birds reportedly having smaller eye patches. Even if so, the two species' different molt schedules (Spear et al. 1992; see above) could make eye-patch size a useful feature. However, we saw no Cook's Petrels (worn or fresh) with large black eye patches approaching the pattern of de Filippi's. Also, de Filippi's Petrels in April, and more so in July, were in worn plumage and so should have had small black eye patches; this was not apparent in the field.

Pycroft's Petrel

Spear et al. (1992) discussed features for separating Pycroft's Petrel from Stejneger's and Cook's petrels. They noted that Pycroft's differs subtly from Cook's in size, flight profile, and flight behavior, criteria all somewhat difficult to evaluate at sea. In July 1995, Howell saw one Pycroft's Petrel and

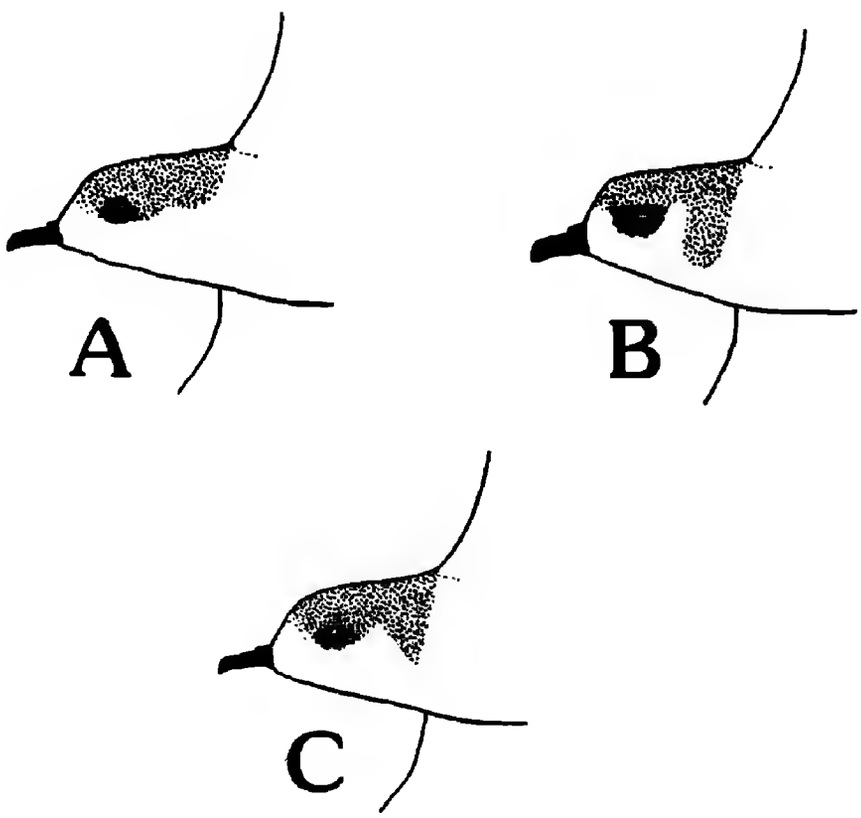

Figure 3. Face and neck patterns, as viewed in profile from below, of A, Cook's Petrel; B, de Filippi's Petrel; C, Pycroft's Petrel. Note the flat gray cap, small "beady" black eye of Cook's, the gray collar mark and bold black bill and eye patch of de Filippi's, and the Stejneger's-like cap of Pycroft's.

Sketch by Steve N. G. Howell

noted its distinctive face/neck pattern (Figure 3C) which, when the bird was backlit, initially led him to consider Stejneger's Petrel (a problem discussed by Spear et al. 1992).

The cap's curving down on to the neck sides is a good character for separating Stejneger's from Cook's Petrel (Roberson and Bailey 1991, Spear et al. 1992). While the similar face/neck patterns of Stejneger's and Pycroft's petrels were illustrated and discussed by Spear et al. (1992, figure 9b), those authors inadvertently failed to mention this character in direct reference to Pycroft's versus Cook's Petrel.

Spear's experience with 100+ Pycroft's Petrels and Howell's experience with four Pycroft's (including a total of five birds collected; Spear et al. 1992) suggest that the differences in face/neck pattern shown by Figure 3 may be the most useful feature for separating this species at sea from Cook's Petrel. Presumably referring to the same character, Roberson and Bailey (1992) noted that 60% of Pycroft's Petrel specimens they examined showed a hint of the white face extending up into the auriculars, compared with only 20% of Cook's Petrels. This difference from our conclusions may reflect specimen "make" and museum versus field experience, and we urge observers to evaluate the face/neck pattern of known Pycroft's Petrels at sea.

SUMMARY

We field-tested identification criteria proposed for separating Cook's and de Filippi's petrels. Variation due to molt, behavior, and wind speed frequently mask the slight differences in shape and flight manner between the two species. Nonetheless, de Filippi's often appears broader-winged and more thickset than Cook's, with a broader and more wedge-shaped (but *not* obviously longer) tail.

Black-tipped central rectrices appear to be universal in Cook's Petrel; uniformly gray ones are usual in de Filippi's. But a few de Filippi's Petrels show a dark tail tip. At ranges of less than 150–200 m, we found face and neck pattern, in combination with bill size, to be the most useful characters for separating the two species at sea: Cook's Petrels show a "flat" gray cap, a "beady" black eye, and a small, slender bill, de Filippi's Petrels show a gray collar (like that of Black-winged Petrel), a bold black eye patch, and a thick black bill (Figure 3).

Pycroft's Petrel typically shows a cap shaped like that of Stejneger's Petrel (and thus different from Cook's Petrel; Figure 3), and we recommend critical observations at sea to evaluate the reliability of this feature for separating Pycroft's from Cook's Petrel.

Despite experience at sea with thousands of *Cookilaria* petrels, including all species found in the eastern Pacific Ocean (Spear et al. 1992), we frequently let birds go as unidentified to species at ranges greater than 200–300 m, and we urge caution with this problematic group of birds.

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LITERATURE CITED

Dunnet, G. M. 1985. Pycroft's Petrel in the breeding season at Hen and Chicken Islands. Notornis 32:5–21.

Giglioli, H. H., and Salvadori, T. 1869. On some new Procellariidae collected on a voyage round the world in 1865–68 by H. I. M.'s "Magenta". Ibis 5:61–68.

Harrison, P. 1983. Seabirds, an Identification Guide. Houghton Mifflin, Boston.

Harrison, P. 1987. Seabirds of the World, a Photographic Guide. Christopher Helm, London.

Roberson, D., and Bailey, S. F. 1991. *Cookilaria* petrels in the eastern Pacific Ocean. Am. Birds 45:1067–1081.

Spear, L. B., Howell, S. N. G., and Ainley, D. G. 1992. Notes on the at-sea identification of some Pacific gadfly petrels (genus: *Pterodroma*). Colonial Waterbirds 15:202–218.

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WINTER DISTRIBUTION OF HERMIT THRUSH SUBSPECIES IN THE SIERRA DE LA LAGUNA, BAJA CALIFORNIA SUR

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The Hermit Thrush (*Catharus guttatus*) winters commonly in Baja California Sur. Specimens we collected of this species in the Sierra de la Laguna, however, reveal new details and clarify misunderstandings concerning the distribution of its subspecies in this region.

STUDY AREA AND METHODS

In January 1990 we made a 2-week expedition across the Sierra de la Laguna, the forested mountains of the Cape district of the peninsula of Baja California and now a biosphere reserve. The sierra, consisting mainly of Cretaceous granites, reaches altitudes of 2200 m. Ornithologists have seldom visited these mountains in winter. We ascended the east slope of the sierra, beginning from Santiago, then climbed the Cañon de la Zorra, paused at Palo Extraño and La Laguna, and finally descended to La Burrera at the west base of the mountains.

This route enabled us to cover both vegetation zones of the sierra: tropical deciduous woodland and oak–pine forest. The more diverse tropical deciduous forest covers 170,500 ha at elevations between 300 and 1500 m and is dominated by *Pachycereus pecten*, *Ferocactus* spp., *Lysiloma divaricata*, *Plumeria acutifolia*, *Euphorbia* spp., *Erythrina flabelliformis*, *Cassia emarginata*, *Pithecellobium mexicanum*, and *Yucca* spp. (Arriaga and León 1989). The mean annual rainfall in this zone is 400 to 700 mm; the mean monthly temperature, 23.3° C (Coria 1988). The oak–pine forest covers 20,000 ha at elevations over 1500 m and is dominated by *Quercus devia*, *Pinus lagunae*, *Arbutus peninsularis*, and *Nolina beldingii* (León de la Luz and Domínguez 1989). The mean annual rainfall exceeds 700 mm, and the mean monthly temperature is 14.7° C. Late summer, mainly August and September, is the rainy season, and the area is subject to hurricanes.

We remained 2 days at most camp sites, observing and collecting birds via mist nets at a wide range of elevations. Unitt prepared the specimens collected as study skins, now stored at the Centro de Investigaciones Biológicas del Noroeste, La Paz (CIB). In 1992 Rodriguez brought some of the specimens to the San Diego Natural History Museum (SDNHM), where we studied them.

RESULTS

We collected nine specimens of the Hermit Thrush (Table 1), at elevations ranging from 430 m (in Cañon La Zorra) to 1650 m (at La Laguna). When preparing the specimens, we were struck by their variation in body mass, the largest being 45% heavier than the smallest, although none was fat and all but one were males. Comparing them with each other and with the substantial collection at SDNHM revealed that these differences in size corresponded with differences in plumage color and pattern and that the nine specimens represented at least three subspecies.

The four smaller specimens, weighing from 18 to 21 grams, all have the breast lightly spotted, conforming to the subspecies *slevini* and *jewetti*. The specimen from La Burrera is slightly paler dorsally than the other three and likely represents *slevini*, which breeds at least in the Coast Ranges of central and northern California (possibly farther north). The other three match a specimen identified by the late A. R. Phillips as *jewetti*, a slightly darker and browner form that breeds from the Olympic Peninsula of Washington south an undetermined distance (Phillips 1991). These two subspecies are very similar, and Aldrich (1968) did not distinguish them. We have not seen fresh-plumaged specimens from the breeding ranges of both so cannot confirm their differences.

The four intermediate specimens, weighing from 22 to 24 grams, have the moderately heavy breast spots and rather dark gray-brown upperparts typical of *Catharus g. guttatus*. This form breeds in southwestern and south-central Alaska (at least) and winters commonly in San Diego County, Upper California, so an ample supply of suitable comparison specimens was available to us in SDNHM. Two of the four specimens from the Sierra de la

Table 1 Hermit Thrushes Collected in the Sierra de la Laguna, 21–31 January 1990

Specimen	Sex	Locality	Elevation (m)	Wing Chord (mm)	Bill from Nostril (mm)	Weight (g)
C. g. slevini/jewetti						
A006	M	Cañon de la Zorra	865	81.6	63.2	18.8
A031	M	La Burrera	500	88.2	67.8	19.7
A003	M	Cañon de la Zorra	430	90.4	71.3	20.4
A009	M	Cañon de la Zorra	1275	86.7	65.3	20.8
C. g. guttatus						
A026	F	La Laguna	1650	86.8	66.4	22.3
A025	M	La Laguna	1650	86.8	67.9	22.3
A019	M	La Laguna	1650	89.2	68.5	23.0
A015	M	Palo Extraño	1625	89.9	68.5	23.2
C. g. auduboni/polionotus						
A020	M	La Laguna	1650	101.6	75.2	27.3

Laguna are completely typical of *guttatus*; two have slightly darker backs, more as in *vaccinius*, but they lack the extensively dark gray flanks, deeper buff background color on the breast, and very heavy breast spotting of the latter subspecies.

The ninth specimen, from La Laguna, weighed 27.3 grams and much exceeds the other specimens in linear measurements, too. These measurements exclude any coastal subspecies of the Hermit Thrush and identify it as either *C. g. auduboni* or *polionotus*, breeding in the Great Basin/Rocky Mountain region. With its very large breast spots and upperparts paler and grayer than in *guttatus* it conforms with *auduboni* in plumage as well as in size. The subspecies *auduboni* and *polionotus* are very similar; neither Phillips (1962) nor Aldrich (1968) recognized them as distinct, though in 1991 the former reversed his opinion. We have not seen specimens that would allow us to distinguish them.

Our specimens of *slevini* (*sensu lato*, including *jewetti*) differed strikingly in elevation and habitat from those of *guttatus* and *auduboni* (*sensu lato*, including *polionotus*). The four specimens of *slevini* all came from elevations below 1300 meters in tropical deciduous woodland variously dominated by *Tecoma stans*, *Lysiloma divaricata*, *Dodonaea viscosa*, *Jatropha vernicosa*, and *J. argentea*. The five specimens of *guttatus* and *auduboni* all came from elevations above 1600 meters in oak–pine woodland with an understory of *Helianthus similis*, *Lepechinia hastata*, *Mimosa xantii*, and *Calliandra brandegeei*. Both *Catharus g. guttatus* and *slevini* have been reported previously from the Cape region of Baja California Sur, but this difference in elevation and habitat preference has not. The difference in habitat, however, corresponds well to the subspecies' known distributions. *Catharus g. guttatus* winters mainly in woodland and chaparral in Upper California, and the latitude of the Sierra de la Laguna is near the southern extreme of its main winter range (AOU 1957, Phillips 1991), so it should be expected there at higher elevations. *Catharus g. slevini*, on the other hand, winters mainly in northwestern mainland Mexico, extending north only slightly across the international frontier. It occurs at low to moderate elevations in Arizona (Monson and Phillips 1981) and apparently in Sonora and Sinaloa as well, as far as can be inferred from the localities listed by van Rossem (1945) and Miller et al. (1957). At 700 meters, Cumpas is the highest locality listed by van Rossem (1945).

To the extent that elevations can be inferred from the often vague localities on specimens from early collectors, the difference in elevations occupied by the two subspecies is apparent in the previous literature (Grinnell 1928, Miller et al. 1957). Apparently both forms may be found at an elevation of about 1220 meters, the elevation of El Sauce, where C. C. Lamb collected one *slevini* and two *guttatus* in November and December 1928 (specimens in the Museum of Vertebrate Zoology, University of California, Berkeley).

Although the AOU (1957) listed *slevini* as occurring only "casually" in Baja California Sur, that state is clearly part of its normal winter range, as specified by Miller et al. (1957).

Catharus g. auduboni has been reported previously from Baja California Sur only on the basis of six specimens collected in the Sierra de la Laguna by

M. A. Frazar from 11 May to 8 June 1887 (Brewster 1902) and still in the Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts (R. A. Paynter, Jr., pers. comm.). Although Frazar found the Hermit Thrush "not numerous, but . . . seen [and heard singing] almost daily," no subsequent observer has reported Hermit Thrushes in these mountains during the breeding season, and the species has not been confirmed as nesting anywhere in Mexico [summer sightings only in the Sierra San Pedro Mártir, Baja California (Norte); Howell and Webb 1992]. The subspecies *auduboni* and *polionotus* winter mainly in pine-oak forests in mainland Mexico (Phillips 1991), so our specimen from La Laguna was in typical habitat.

SUMMARY

At least two subspecies of the Hermit Thrush winter commonly in the Cape region of Baja California, *Catharus g. slevini/jewetti* at lower elevations (up to at least 1275 meters) in tropical deciduous forest, and *C. g. guttatus* at higher elevations in oak-pine forest (down to at least 1200 meters). On the basis of one specimen, *Catharus g. auduboni* and/or *polionotus* also winters at least rarely in montane oak-pine forest.

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LITERATURE CITED

Aldrich, J. W. 1968. Population characteristics and nomenclature of the Hermit Thrush. Proc. U. S. Natl. Mus. 124 (3637):1–33.

American Ornithologists' Union. 1957. Check-List of North American Birds, 5th ed. Am. Ornithol. Union, Baltimore.

Arriaga, L., and León, J. L. 1989. The Mexican tropical deciduous forest of Baja California Sur: A floristic and structural approach. Vegetatio 84:45–52.

Brewster, W. 1902. Birds of the cape region of Lower California. Bull. Mus. Comp. Zool. 41:1–241.

Coria, R. B. 1988. Climatología, in La Sierra de la Laguna de Baja California Sur (L. Arriaga and A. Ortega, eds.), pp. 45–52. CIB-Robles Hnos. y Asoc., México.

Grinnell, J. 1928. A distributional summation of the ornithology of Lower California. Univ. Calif. Publ. Zool. 32:1–300.

Howell, S. N. G., and Webb, S. 1992. Noteworthy bird observations from Baja California, Mexico. W. Birds 23:153–163.

León de la Luz, J., and Domínguez, R. 1989. Flora of the Sierra de la Laguna, Baja California Sur, Mexico. Madroño 36:61–83.

Miller, A. H., Friedmann, H., Griscom, L., and Moore, R. T. 1957. Distributional check-list of the birds of Mexico, part II. Pacific Coast Avifauna 33.

Monson, G., and Phillips, A. R. 1981. Annotated Checklist of the Birds of Arizona, 2nd ed. Univ. of Ariz. Press, Tucson.

Phillips, A. R. 1962. Notas sistemáticas sobre aves mexicanas. I. Anal. Inst. Biol. Mex. 32:333–387.

Phillips, A. R. 1991. The Known Birds of North and Middle America, part II. A. R. Phillips, Denver.

Van Rossem, A. J. 1945. A distributional survey of the birds of Sonora, Mexico. Occ. Pap. Mus. Zool. La. State Univ. 21.

Accepted 20 March 1996

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THE BREEDING COLONY OF LAYSAN ALBATROSSES ON ISLA DE GUADALUPE, MEXICO

JUAN-PABLO GALLO-REYNOSO and ANA-LUISA FIGUEROA-CARRANZA, A-318 Natural Sciences 4, University of California, Santa Cruz, California 95064 (current address of Gallo: CIDESON-Guaymas, Miramar 63, planta alta, Col. Miramar, Guaymas, Sonora 85450 México; current address of Figueroa: Conservation International-México, A. C., Programa Golfo de California. Miramar 63, planta alta, Col. Miramar, Guaymas, Sonora 85450, México)

Early accounts of the birds of Isla de Guadalupe and adjacent waters did not mention the Laysan Albatross, *Diomedea immutabilis* (Jehl and Everett 1985), though Pitman (1986) and Jennings (1987) observed the species around the island from 1974 to 1984. Dunlap (1988) first reported it breeding on Isla de Guadalupe in May 1986, the first known breeding colony for the species east of the Hawaiian Islands and a major range extension. Howell and Webb (1992) noted additional new colonies established on Isla San Benedicto (19° 19′N, 110° 49′W) and Isla Clarión (18° 22′N, 114° 44′ W) in the Revillagigedo Archipelago. The colony at Isla de Guadalupe has been reported on subsequently by Oberbauer et al. (1989) and Howell and Webb (1992). Here we summarize the growth and current status of this colony on the basis of our observations in 1991 and 1992 and those of the island's military staff.

STUDY SITE AND METHODS

Isla de Guadalupe (29° 00′N, 118° 15′30″W), a volcanic island, 240 km off Baja California, lies within the California Current, in which nutrient-rich cold upwelled water flows from north to south (Roden 1971, Lynn and Simpson 1987).

We censused nesting albatrosses by ground counts, maintaining a distance of 10 m to avoid disturbing the birds. The colony was divided into three study areas, according to substrate, vegetation, and density. Nests were plotted on a map of the colony (Figure 1). The area occupied by the colony was estimated from marine charts of Isla de Guadalupe (H. O. 1688, U.S. Navy). We estimated the total population by adding the number of nesting pairs to the number of nonbreeding birds. We estimated breeding success by monitoring during the incubation period to assess hatching success (February 1991: two censuses of the colony; February 1992: three censuses), after fledging to assess chick mortality (June 1991: two censuses, July 1991: two censuses; June 1992: one census, July 1992: three censuses), and during arrival for nesting (November–December 1991: two censuses; November 1992: two censuses).

RESULTS

The Laysan Albatross colony is located at the southern end of the main island, on a man-made terrace known as the "weather station." This plateau is approximately 100 m above sea level and is exposed to the predominant

northwesterly (fall, winter, spring) and southeasterly (summer) winds (Berdegué 1957). The terrace has been cleared of scattered lava rocks and gravel and is the site of a meteorological observatory and a seismographic station. Several pathways and a dirt road cross the terrace (Figure 1). Parts of this terrace are covered by dirt, sand, low vegetation, and lichens.

Most albatrosses (in 1992, 41 of 45 nests, or 91%) nested in areas with low brush and rocks (Figures 2 and 3). Only a few nested in areas with little or no vegetation (4 nests, or 9%). Area 1, the area most exposed to the wind, is located on the steep slope toward Punta Sur, covering about 1000 m^2 with a substrate composed of lava rocks, lava rubble, gravel, and abundant brush (*Franseria camphorata* and *Atriplex palmeri*). This area supported the

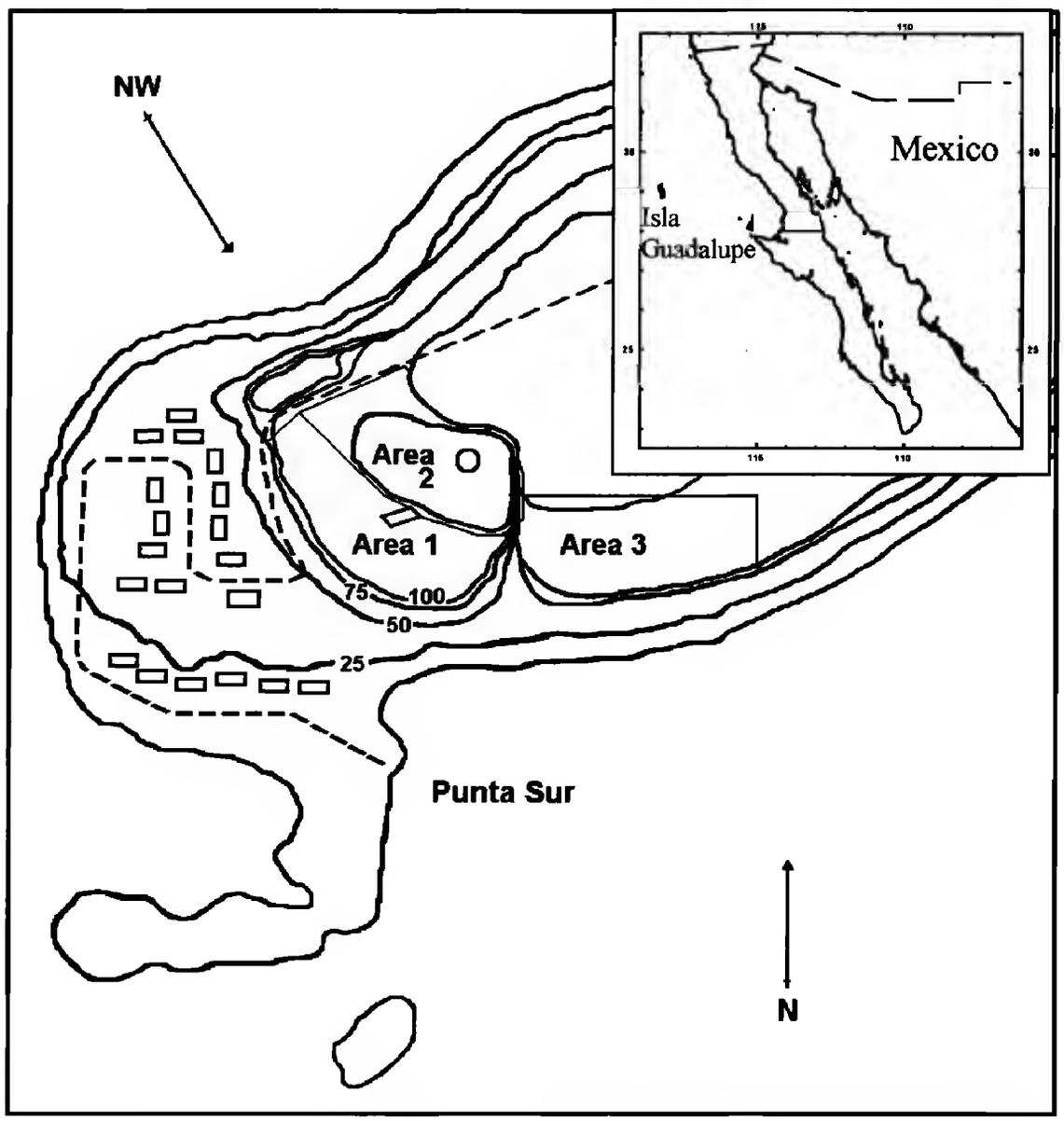

Figure 1. Location of the Laysan Albatross breeding area at Punta Sur, Isla de Guadalupe, just above the town. The arrow at upper left shows the direction of the predominant winds. The circle in Area 2 is the meteorological radar dome, and the rectangle in Area 1 is the seismological station.

Figure 2. Area 1 of the Laysan Albatross colony, Isla de Gualaupe. Slope sheltered from the wind by rocks and brush (February 1992).

Photo by Juan-Pablo Gallo-R.

Figure 3. Area 1 of the Laysan Albatross colony, Isla de Guadalupe. Terrace with little cover from the wind (February 1992).

Photo by Juan-Pablo Gallo-R.

highest density and number of birds with 79 individuals (60.8%) (Figures 2 and 3). Area 2, separated from Area 1 by a dirt road, is where the buildings of the weather and seismography stations are located. It covers about 2000 m^2, and is characterized by lava rocks, lava rubble, and sparse vegetation. Nineteen individuals (14.6%) were found here. Area 3 is separated from areas 1 and 2 by a dry creek bed, and is about 8 m lower than the terrace. It covers about 3000 m^2 and is also composed of lava rocks, rubble, and gravel with abundant low brush and few scattered areas of dirt. We counted 32 individuals (24.6%) here.

From 2 to 5 June 1983, Gallo visited Guadalupe for a pinniped survey. Several portions of the island were explored, including the terrace where the Laysan Albatrosses currently nest. We found no evidence of this species on the island (including nests, bones, feathers, or eggshells) even though the expedition was made before any albatross chicks would have fledged.

According to the island's military staff, in November 1983 the first two pairs of albatrosses landed in the terrace area, about 100 m above the naval base. They attempted to nest but were not successful (Cruz-Bautista pers. comm.). Later that winter, in January 1984, four pairs nested in the terrace area (Cruz-Bautista pers. comm.). Four hatchlings were observed in February 1984, but no information concerning their fledging success is available.

In January 1985, five pairs attempted nesting (Cruz-Bautista pers. comm.), and by May 1986, six molting chicks and five to six adults were observed (Jennings 1987, Dunlap 1988).

On 26 January 1988, Howell and Webb (1992) estimated 35–40 adults, 12 of which were incubating single eggs. That year, however, military personnel ate some eggs and some adults; as a result, the population was almost exterminated. Although eating albatrosses by humans was stopped, later in the same year, a dog from the naval base was observed killing and eating a young chick. The dog was killed by military personnel (Cruz-Bautista pers. comm.).

On 30 March 1989, Oberbauer et al. (1989) found only 10 adults, five young and one nest with an egg.

By February 1990 the population consisted of 18 pairs with 18 chicks (Cruz-Bautista pers. comm.). That year, R. Le Duc found a dead adult albatross near the colony that military personnel said a dog had killed (R. L. Pitman in. litt.).

On 18 and 19 February 1991 we counted 21 nesting pairs, 21 nestlings, and six unpaired individuals. We censused the population again on 16 June, and observed 12 young with their parents.

On 14 and 18 February 1992, we counted 45 nests and estimated a population of about 130 birds. Unusually heavy rain (rainfall for 5–6 February was 75.5 mm) associated with 1992 El Niño was the probable cause of death for three chicks killed by rock and mud slides. That summer, we arrived on 26 June, and found 13 fledglings. Upon arriving we observed a dead fledgling floating southeast of the island.

In fall 1992 the first albatross arrived on 2 November. When we left on 24 November the colony had 41 individuals, 32 of which were nesting birds.

Using the exponential model of growth, $k = (\ln t - \ln t_0)/t$ (where k = rate of increase), we obtained an average rate of annual population increase of

29.9% over the last eight years (exponential regression: $r^2 = 0.78$, $n = 8$ years) (Figure 4). The finite rate of increase, the year-to-year increase of the population (λ), of 13.5% was calculated from the expression $\lambda = e^k$ (Poole 1974).

Laysan Albatrosses arrived on Isla de Guadalupe from early November to mid-December. The egg-laying period over the two years of our study was from 27 November to 12 February. Hatching extended from 23 December 1990 to at least 28 February 1991 (when we left the island, seven eggs had not hatched), peaking around 27 January. Rice and Kenyon (1962) found the species' nestling period in Hawaii to be 165 days. We found an average length of the nestling stage of 201.5 days for the two nesting seasons (21 nests in 1991 and 45 nests in 1992). The average nesting period started on 23 December and finished on 17 July.

In 1991, the chicks fledged between 12 June and July 17. Fledging success in 1991 was likely near 100%, as we found no evidence of dead young around the colony, or near caves which often shelter feral cats and where carcasses of Xantus' Murrelets (*Synthliboramphus hypoleucus*) were seen. Albatrosses started arriving again on 14 November, and immediately began pair formation and courtship.

In 1992 the last chick fledged on 10 July, seven days earlier than the previous year. In this year, 45 of the 41 chicks that hatched fledged, for a fledging success of 91%.

DISCUSSION

Approximately 2.5 million individual Laysan Albatrosses breed on the northwestern Hawaiian Islands. The density of the population is very high, and new nesting areas were established and grew in the mid to late 1980s (Harrison 1990). From the availability of nesting area at Isla de Guadalupe and apparent reproductive success, it is probable that this population will expand.

The Laysan Albatrosses nesting on the island today can not all be descendants of the first four pairs found on Isla de Guadalupe in 1984 (Figure 4). The rate of population growth has been greater than intrinsically possible, on the basis of an average age at first breeding of 5 to 7 years (Rice and Kenyon 1962, Fisher 1972) and annual reproductive potential. Thus we infer that recruitment to Isla de Guadalupe explains much of the population increase.

The factors prompting the Laysan Albatross to colonize the islands off Mexico can only be speculated on. Possibly significant are the continuing increase of the Hawaiian population, now recovering from earlier exploitation (Harrison 1990), and the massive development since 1980 of the drift-net fishery in the North Pacific. The latter, though catching huge quantities of the albatrosses' prey species, also releases a tremendous quantity of waste (squid offal) that the birds consume.

The conservation and growth of the Laysan Albatross colony on Isla de Guadalupe will be achieved if ongoing efforts are continued. The presence of biologists has had a significant impact on the authorities and fishermen by

helping them understand the importance of this species as a newcomer to the Mexican avifauna. Efforts by Mexican authorities, especially the Mexican Navy, to preserve this species at Isla de Guadalupe have been undertaken and have been successful to date.

SUMMARY

The Laysan Albatrosses breeding on Isla de Guadalupe arrive from early November to mid December and lay from late November to early February. The chicks hatch from late December to late February and fledge from mid-June to mid-July. From two seasons of study, the mean length of the nestling stage is 201.5 days. From 4 pairs in 1984 the colony has grown to 131 individuals in 1992, an annual rate of increase of 13.5%. This colony was established after the species' population expansion in the Hawaiian Islands and coincident with the development of the drift-net fishery.

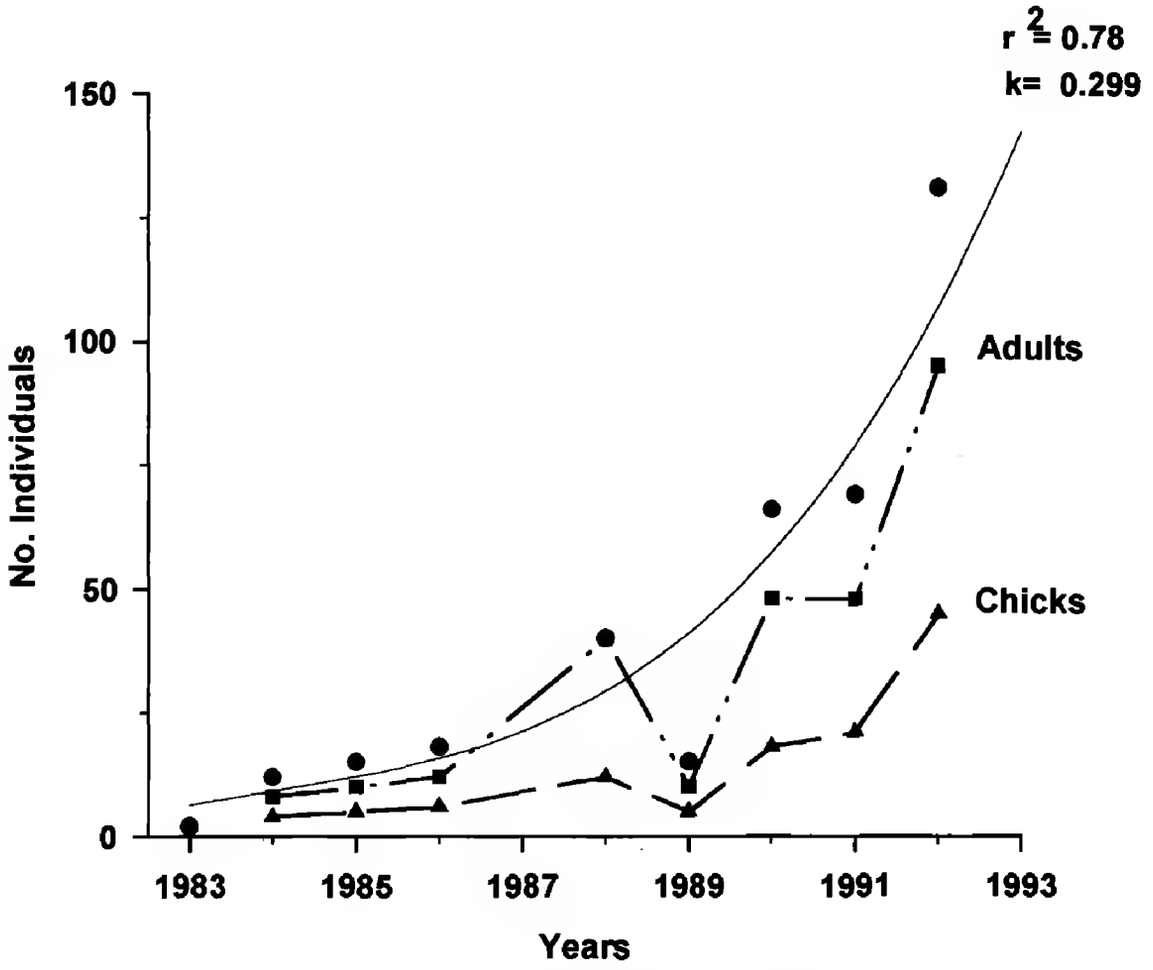

Figure 4. Growth of the Laysan Albatross population at Isla de Guadalupe. Nesting adults include nesting pairs. Circles, total population; squares, nesting adults; triangles, chicks; curve, derived rate of population increase (k = 0.299). No data available for 1987. The decrease observed in 1989 was due to exploitation of the eggs by military personnel.

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LITERATURE CITED

Berdegué, J. 1957. La Isla de Guadalupe, Contribución al conocimiento de sus recursos naturales renovables. Secretaría de Marina, Dir. Gral. Pesc. Indus. Conex., México, D.F.

Dunlap, E. 1988. Laysan Albatross nesting on Guadalupe Island, Mexico. Am. Birds. 42:180–181.

Fisher, H. I. 1972. Sympatry of Laysan and Black-footed Albatrosses. Auk 89:81–402.

Harrison, C. S. 1990. Seabirds of Hawaii: Natural history and conservation. Cornell Univ. Press, Ithaca, N.Y.

Howell, S. N. G., and Webb, S. 1992. Changing status of the Laysan Albatross in Mexico. Am. Birds. 46:220–223.

Jehl, J. R., Jr., and Everett, W. T. 1985. History and status of the avifauna of Isla Guadalupe, Mexico. Trans. San Diego Soc. Nat. Hist. 20:313–336.

Jennings, G. Y. 1987. Guadalupe. Oceans 20(5):40–45.

Lynn, R. J., and Simpson, J. J. 1987. The California Current System: The seasonal variability of its physical characteristics. J. Geophys. Res. 92(c12):12,947–12,966.

Oberbauer, T. A., Cibit, C., and Lichtwardt, E. 1989. Notes from Isla Guadalupe. W. Birds 20:89–90.

Pitman, R. L. 1986. Atlas of seabird distribution and relative abundance in the Eastern Tropical Pacific. Admin. Rep. LJ-86-02C, Natl. Marine Fisheries Serv., Southwest Fisheries Center, P. O. Box 271, La Jolla, CA 92038.

Poole, R. W. 1974. An Introduction to Quantitative Ecology. Mc.Graw-Hill Kogakusha, Tokyo.

Rice, D. W., and Kenyon, K. W. 1962. Breeding cycles and behavior of Laysan and Black-footed albatrosses. Auk 79:517–567.

Roden, G. I. 1971. Large-scale upwelling off northwestern Mexico. J. Phys. Oceanogr. 2:184–189.

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PRESIDENT'S MESSAGE

At a special meeting held on 1 August 1995, the Board of Directors of the Western Field Ornithologists elected me to fill its presidency. I've been a member of this organization for well over half of my life, all the while in awe of the "who's who" of western North American field ornithology who have worked hard to build WFO into the premier organization of its kind. Being asked to fill the role of its president was an honor, but not without its challenges.

Another important item of business at the August 1995 meeting was the replacement of three retiring directors. Bruce Deuel, Peter Gent, and Steve Summers have stepped down as directors; we thank them, for the organization has benefited greatly from their input. Their departure, and the expiration of Bob McKernan's term as director, left four positions to be filled. Happily, we've brought ex-president Tim Manolis back as a director, and have added three of the more active field workers in the West: Dan Gibson from Fairbanks, Alaska, Dave Shuford from Stinson Beach, California, and Mike San Miguel from Arcadia, California. Mike has further agreed to step into the role of vice-president. I welcome all of these talented folks to the board and look forward to working with them. Finally, I thank Bob McKernan for his years of service as WFO president and look forward to his input as an ex-officio member of the board.

What WFO does, it does well, *Western Birds* is perhaps the premier regional field ornithology journal in North America. But this is a case where bigger is actually better, and we are exploring means of raising additional revenues though advertising and marketing that can be channeled directly into an even better *Western Birds* with more papers, more pages, more photos, and more color. Other planned ventures include the publication of new check-lists, a book (nearing completion in draft form) detailing the decisions of the California Bird Records Committee, and a WFO presence on the World Wide Web.

Is WFO a California organization that has a token extension into neighboring states and provinces? I believe the answer is, and should be, no. But a California emphasis is clearly reflected in our current membership. We need to build partnerships with other state and regional field ornithology organizations, benefiting from each other's strengths. We must all work to increase our membership. With a hard-working Dori Myers to run our membership, circulation, and treasury functions, it's up to us to get her some business!

Our 1996 meeting will be held jointly with the Colorado Field Ornithologists in Estes Park, Colorado; Steve Bouricius of CFO is chairing the meeting, and Peter Gent is acting as WFO liaison. The 14–16 June meeting dates are right before the American Birding Association's biennial convention in Park City, Utah. Plan to attend both! The 1997 WFO meeting will be in California's Imperial Valley; details are being developed by Roger Higson. Finally, we owe our thanks to Bill Tweit and Russell Rogers for organizing the successful Spokane meeting in June 1995.

I welcome any ideas from the members—this is *your* organization, after all. Write me, or send me an e-mail message at garrett@bcf.usc.edu.

Kimball L. Garrett

NOTES

NESTING ANNA'S HUMMINGBIRDS IN URBAN TUCSON, ARIZONA

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Anna's Hummingbird (*Calypte anna*), formerly regarded as a California species (Ridgway 1890), has extended its range in recent years. In Arizona, the species was thought to be a fall and winter resident only, with no positive breeding records prior to the mid-1960s (Phillips et al. 1964). Spring occurrences were not documented until after 1964, and only rarely prior to the 1970s were the birds noted in summer (Zimmerman 1973). The species first nested near Tucson in 1972; young fledged 14 March (Calder 1974). In Arizona, Anna's Hummingbird's breeding is confined mainly to cities (Zimmerman 1973).

We followed the nesting of six (unmarked) female Anna's Hummingbirds in Tucson during 1993 and 1994. We provide information concerning nest-site characteristics, interactions of females, and parental care of fledglings. We confirmed double brooding (see Legg and Pitelka 1956) by two females.

Our study took place at the Western Archeological and Conservation Center on 1.19 ha of landscaped space in 4.2 ha of buildings and paved areas. Plants at this site include nonnative ornamentals and native species. Tree species are the Sweet Acacia (*Acacia smallii*), Honey Mesquite (*Prosopis glutinosa*), Blue Paloverde (*Cercidium floridum*), and Mexican Paloverde (*Parkinsonia aculeata*). We observed nesting hummingbirds from February through July 1993 and November 1993 through early July 1994. Nest height and straight-line distances between nests and from nests to identified sources of paint flakes (used in nest construction) were measured. All trees were mapped and identified, and female hummingbirds were named A through F. We associated hummingbird nests with females (i.e., A–1 refers to the first nest of female A, A–2 to the second of female A, etc.).

In 1993, females A and B nested simultaneously, each fledging young from two broods (Appendix). The first pair of nests (A–1 and B–1) were separated by approximately 70 m; the second pair (A–2 and B–2) were approximately 135 m apart. A building separated the nests of female A from those of female B. Each female communicated with a chip note when flying over the nest of the other (see Stiles 1982), but we did not observe these females contesting the vicinity of their nests. As the young of B–2 were about to fledge, female C began to build her nest (C–1) around the corner of a building, approximately 37 m from B–2. After the failure of C–1, female D (recognizable by distinctive markings) arrived on the study site and successfully nested (D–1) approximately 9 m from the site of C–1.

We observed females E and F on the southeast part of the study site as early as November 1993. There were no visual barriers, such as man-made structures, subdividing the area, and we observed many confrontations between the two birds. Female E built her nest (E–1) first. Female F often disturbed her at this nest by approaching the nest and even perching on the side of it while female E occupied it. Female E abandoned the nest four days after laying one egg and before laying a second egg, although she did begin to incubate. Female E constructed a second nest (E–2) in the same vicinity, with similar, persistent disturbance by female F; a predator ultimately took the two nestlings. Female F began to construct her nest (F–1) while

female E was feeding nestlings (E–2). Nests E–2 and F–1 were located approximately 19 m apart with no intervening vegetation or other objects to obstruct view from one nest to the other.

Three of the females (A, E, and F) frequently used prominent perches near their nests, from which each chased intruding Anna's Hummingbirds (and other bird species) from the vicinity of their nests. Female A chased a male and female Anna's traveling together, and often chased Verdins (*Auriparus flaviceps*), Northern Mockingbirds (*Mimus polyglottos*), Curve-billed Thrashers (*Toxostoma curvirostre*), House Sparrows (*Passer domesticus*), and House Finches (*Carpodacus mexicanus*). While building her nests and during incubation, female E chased female F on each occasion they were observed together. After both nesting attempts of female E failed and female F had begun her own nest, the role of aggressor reversed: female F began chasing female E from her nest area.

Ambient temperatures increased during the advancing nesting seasons in 1993 and 1994. Later nests were built at greater heights (Appendix), with the exception of the last nest of 1993 (D–1), which was shaded early in the afternoon by a building.

Hummingbirds added paint flakes of various colors to the outside of their nests with the exception of female D, which added plant parts to the outside of D–1. Paint flakes were collected from an adjacent building, a stationary trailer, and from buildings in the neighboring area. Female A used only a few paint flakes, from a variety of sources, on nest A–1, but covered A–2 profusely with flakes from a single source, about 100 m northeast of her nest. We recorded paint-flake sources at distances ranging from approximately 4 m to approximately 180 m from nests. We observed a female feeding on flowers adjacent to the most distant paint-flake site.

Females A and B each raised a second brood after fledging of their first brood. They nested simultaneously from mid-January through April 1993. Both females began construction of second nests while still feeding fledglings from their first broods; female A began to build her second nest the day after young from her first nest fledged. Female A built nest A–2 38 m west of A–1, and female B built nest B–2 20 m north of B–1. We observed each female fly alternately to her new nest site and her fledglings (for three days at start of A–2 and six days at B–2). Fledglings from the first broods remained in the vicinity of their home nests until their mothers laid eggs and began incubation. We observed female A feed her young from A–2 three days after it fledged; female B was still feeding the second young to fledge from B–2 (distinguishable from her other fledgling by size) seven days after it fledged.

We observed female D, distinguishable by a crook in her bill, with her single young 24 to 27 days after it fledged. The young bird fledged between 9 and 12 July, and was regularly seen being fed by its mother through 16 July. On 4 and 5 August, we saw female D perched within a meter of presumably the same young bird.

We observed six nests built by four females in 1993 and three nests by two females in 1994 (Appendix). In 1993, 91% of the eggs laid hatched and 73% of the eggs fledged. One nest (C–1) failed because of predation of nestlings; young fledged from the other five nests. In 1994, only two of five eggs hatched and no nests were successful.

There were few aggressive interactions in 1993 between nesting females. Birds A and B acknowledged each other's flights by vocal chips but did not chase; their nests were visually separated by a building. Nesting of female C overlapped the second nesting of females A and B; nesting of female D did not overlap other females' nesting.

The insistent claim to the same area by females E and F in 1994, coupled with their intolerance of each other in a shared area, may have contributed to nest failure for both females. We do not know what caused E and F to select sites so close together (19 m), but since 1994 was very dry and many food sources available in 1993 were not in 1994, perhaps this area was critical.

Our observations of female D and her young suggest that parental care of offspring may be extended if the mother does not attempt additional broods. Female B was still feeding one of her young from B–2 seven days after it fledged, the last day we saw female B and her young on the site.

We thank Chris White, Joan Ford, Jim Reece, Blair Soles, and Lisa Gandara for additional observations. Steve Russell provided additional information and encouraged production of this report.

LITERATURE CITED

Calder, W. A., Jr. 1974. The thermal and radiant environment of a winter hummingbird nest. Condor 76:268–273.

Legg, K., and Pitelka, F. A. 1956. Ecologic overlap of Allen and Anna hummingbirds nesting at Santa Cruz, California. Condor 58:393–405.

Phillips, A. R., Marshall, Jr., J. T., and Monson, G. 1964. The Birds of Arizona. Univ. Ariz. Press, Tucson.

Ridgway, R. 1890. The Hummingbirds. Rep. U.S. Nat. Mus. 1889–1890, p. 336.

Stiles, F. G. 1982. Aggressive and courtship displays of the male Anna's Hummingbird. Condor 84:208–225.

Zimmerman, D. A. 1973. Range expansion of Anna's Hummingbird. Am. Birds 27:827–835.

Appendix. Data on Six Anna's Hummingbird Nests in Tucson, Arizona, 1993 and 1994.

Female A. Nest 1: In *Acacia smallii*, height 189 cm; 2 eggs laid before 4 Feb 1993; one hatched before 10 Feb, other hatching on 10 Feb; both young fledged when inadvertently flushed from nest 4 Mar. Nest 2: In *A. smallii*, height 218 cm; 2 eggs laid 10 and 15 Mar; one hatched between 25 and 30 Mar; single young fledged 19 or 20 Apr.

Female B. Nest 1: In *Cercidium floridum*, height 205 cm; 2 eggs laid before 4 Feb 1993; first hatched on 4 or 5 Feb, second hatched between 5 and 8 Feb; both fledged 2 Mar. Nest 2: In *C. floridum*, height 251.6 cm; 2 eggs laid between 5 and 8 Mar; first fledged when flushed from nest 12 Apr, second on 15 or 16 Apr.

Female C: In *Prosopis glandulosa*, height 292.1 cm; 2 eggs laid before 27 Apr 1993; both hatched between 30 Apr and 3 May; nest and young destroyed, presumably by predator, on 11 or 12 May.

Female D: In *Prosopis glandulosa*, height 175 cm; before 22 Jun 1993; hatched before 22 Jun; fledged between 9 and 12 Jul.

Female E. Nest 1: In *Cercidium floridum*, height 166 cm; 1 egg laid 28 or 29 Jan 1994; nest abandoned before 2 Feb. Nest 2: In *C. floridum*, height 190 cm; 2 eggs, one laid on 18 or 19 Feb, second between 19 and 21 Feb; first egg hatched on 7 or 8 Mar, second on 8 or 9 Mar; young destroyed, presumably by predator, between 17 and 19 Mar.

Female F: In *Cercidium floridum*, height 269 cm; 2 eggs, one laid on 23 or 24 Mar 1994, second on 25 or 26 Mar; eggs destroyed, presumably by predator, on 3 or 4 Apr.

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SOME NESTING WATERBIRDS FROM SOUTHERN SAN JOSE ISLAND AND ADJACENT ISLANDS, GULF OF CALIFORNIA, MEXICO

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The Gulf of California is important for nesting seabirds (Anderson 1983), but the low productivity of the southern portion causes the abundance of seabirds to decrease with latitude (Cody et al. 1983, Carmona et al. 1994). Perhaps for this reason there have been few recent ornithological studies of this area. San José Island, north of La Paz Bay, is one of the areas for which very few records exist (Grinnell 1928, Wilbur 1987, Velarde and Anderson 1993). This paper presents a preliminary list of waterbirds breeding in the southernmost portion of San José Island and on three smaller adjacent islands.

The study area is located on the southeast side of the Baja California peninsula and marks the northern limit of La Paz Bay (Figure 1). San José Island has a semidesert climate with a mean annual temperature of 23° C (García and Mosiño 1969) and an average annual precipitation of <250 mm (Jiménez 1989). It lies at the edges of two major biogeographic areas: the California region and the Cortez province (Anderson 1983).

Off the southeast tip of San José Island are three important small islands: San Francisquito, with an area of 3.8 km^2, has 45-m cliffs along its east side and sandy beaches elsewhere around its periphery; El Callo, with an area of 0.13 km^2, is surrounded by rocky beaches only; El Pardito, covering 0.12 km^2, has no vegetation and is inhabited year round by fishermen (Anonymous 1987).

In this area, we identified four nesting sites. Two are on San Francisquito Island: El Arenal, a sandy beach 1.5 km long, located on the northern portion of the island, and Punta Colorada, a rocky beach 2 km long with a 5-m cliff, located west of El Arenal. The third location, La Cocina, is a rocky beach 2 km long on the southwest side of San José Island. Finally, El Callo has an elevated plain with vegetation dominated by cholla cactus, *Opuntia cholla*, and surrounded by cliffs 20 m high.

We visited the area from 4 to 7 and 28 to 30 May 1995. On both visits, we censused all four sites, counting nests, eggs, and chicks. We made the counts in the shortest possible period of time, early in the morning and late afternoon, by walking through every area. We found six species nesting.

Blue-footed Booby (*Sula nebouxii*). This species was observed nesting only at El Callo. During the first visit, we found one nest with two eggs and an adult perching nearby; during the second, three nests, two with one egg, the third with two (probably the same recorded for the first visit), but neither chicks nor adults. Two nesting colonies of *S. nebouxii* have been reported previously in La Paz Bay. One small colony, at Gaviota Island, was used annually until the end of the 1970s. It was abandoned because of the disturbance caused by the detonations when San Juan Nepomuceno Island (approximately 800 m from Gaviota Island) was artificially joined to the coast (Mendoza 1994). The other colony at La Lobera, (north of Espiritu Santo Island) had one and two nests in 1988 and 1990, respectively (Carmona et al. 1994).

Brown Booby (*S. leucogaster*). Several individuals were observed perching at El Callo, but only one adult was incubating during the first visit and no evidence of nesting was observed during the second. The only nesting recorded within approxi-

mately 40 km of the study area is of a small colony on La Gaviota Island, La Paz Bay, that has since disappeared following the same disturbance that terminated the Blue-footed Booby colony (Mendoza 1994). The paucity of nests of both booby species in La Paz Bay and at El Callo may be attributable to the low productivity of the lower Gulf of California.

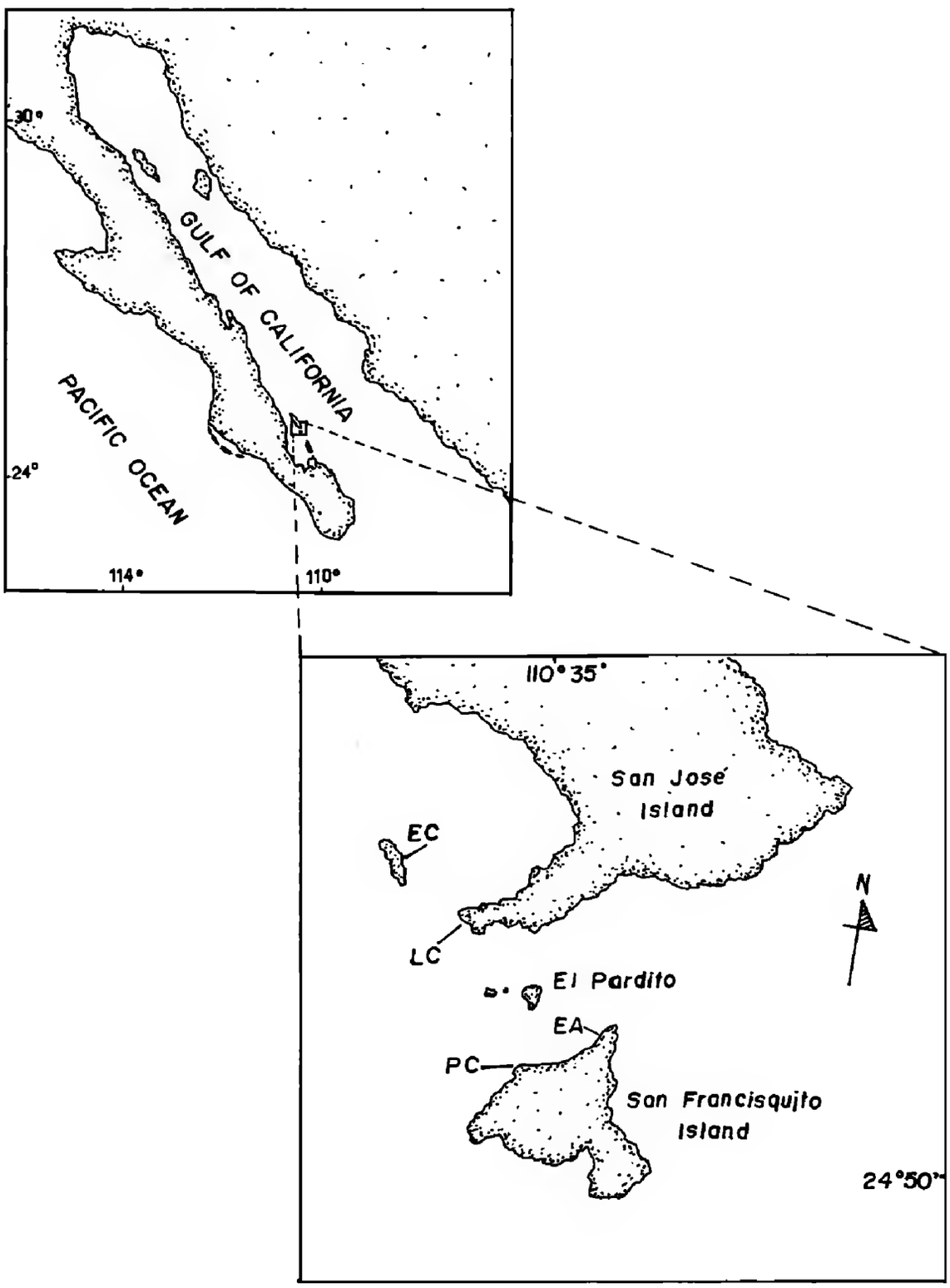

Figure 1. Southern San José Island, showing sites of waterbird colonies. EC, El Callo; LC, La Cocina; EA, El Arenal; PC, Punta Colorada.

Great Blue Heron (*Ardea herodias*). We found four nests at El Callo. During the first visit, one was empty, one had two eggs, and two had two chicks each. During the second visit, one was empty, one had one egg, one had two eggs, and one had two chicks. Two fledglings were also nearby. Nesting of this species has been widely recorded in Baja California Sur (Becerril 1994, Carmona et al. 1994, Maldonado and Sánchez 1994).

Heermann's Gull (*Larus heermanni*). This species was observed nesting only at El Callo. We counted 14 nests with 26 chicks and one egg during the first visit. During the second visit only 11 chicks were observed, for a productivity of 0.78 fledglings per nest. First- and second-winter immatures were also observed. This colony is very recent; Carmona visited the area during the breeding seasons of 1986 and 1988, finding no evidence of nesting by this species. The colony was surrounded by about 25–30 Yellow-footed Gull nests. Predation by the Yellow-footed Gull may explain the apparent losses of Heermann's chicks between the first and second visits (e.g., Velarde 1992). There is one previous report of nesting for this species in La Paz Bay, of two solitary nests in 1990 (Carmona et al. 1994).

Yellow-footed Gull (*L. livens*). Nesting was observed at all four localities. At El Callo there were 25-30 nests, with a total of 73 and 68 chicks observed during the first and second visits, respectively. At La Cocina 22 nests, 13 chicks, and 27 eggs were recorded on the first visit, 37 chicks and 3 eggs on the second. During both the first and second visits to El Arenal, five nests and 10 chicks were observed. On the second visit an additional six nests were seen about 500 m west of El Arenal. At Punta Colorada the gulls' nesting was more advanced than at the other localities. During the first visit, 14 nests, 24 chicks, and one nest with two eggs were observed. During the last visit we found 25 chicks and no eggs.

Interestingly, the Yellow-footed Gull's nesting in this area, both within and between colonies, is asynchronous. During the first visit to Punta Colorada, there was only one egg, and most of the chicks were more than 15 days old; in contrast, at La Cocina eggs predominated, though chicks older than 15 days were also found. Several factors may cause this asynchrony: the colonies consisted of a mix of young and old pairs; asynchrony diminishes competition for food at the most critical stage of the reproductive cycle; egg predation by fishermen induced renesting. Testing of these hypotheses requires further studies.

The smallness of these colonies may be attributable to the characteristics of the substrate and the thermoregulatory requirements of the chicks (Hand 1980, Hand et al. 1981) and/or egging by fishermen, since smaller colonies are harder to spot (Spear and Anderson 1989).

Osprey (*Pandion haliaetus*). A pair was bringing new material to a nest atop an abandoned lighthouse during our first visit to La Cocina, but they were absent during our second visit.

Only six nesting species were recorded in this study area, compared to 21 for the better-studied La Paz Bay (Carmona et al. 1994). However, San José Island has several mangrove areas that we did not survey during our study. It is likely that some species of the families Ardeidae and Rallidae nest in these mangroves. Furthermore, remains of nests observed in crevices on San Francisquito Island suggest nesting of storm-petrels (*Oceanodroma* sp.). More detailed investigations will likely turn up additional nesting waterbirds. Still, these colonies, like those in La Paz Bay, are marginal in comparison to the much larger colonies farther north in the Gulf of California. Further information is needed for the monitoring of the stress and potential impacts of egg collection by local fishermen, as well as to help the design and implementation of a future management program for this area.

NOTES

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LITERATURE CITED

Anderson, D.W. 1983. The seabirds, in Island Biogeography in the Sea of Cortez (T. J. Case and M. L. Cody, eds.), pp. 246–264. Univ. Calif. Press, Berkeley.

Anonymous, 1987. Islas Mexicanas. Régimen Jurídico y Catálogo. Secretaría de Marina y Gobernación, México, D. F.

Becerril, M. F. 1994. Reparto de los recursos temporal, espacial y trófico por parte de los ardéidos anidantes en el manglar "El Conchalito," Baja California Sur, México, durante las temporadas reproductivas de 1992 y 1993. Thesis, Univ. Autónoma B.C.S., La Paz.

Carmona, R., and Zárate, B. 1992. Biología reproductiva de la gaviota de patas amarillas (*Larus livens*) en Isla Gaviota, B.C.S., México. Rev. Inv. Cient. 3 (1):11–22.

Carmona, R., Guzmán, J., Ramírez, S., and Fernández, G. 1994. Breeding waterbirds of La Paz Bay, Baja California Sur, México. W. Birds 25:151–157.

Cody, M., Moran, R., and Thompson, H. 1983. The plants, in Island Biogeography in the Sea of Cortez (T. J. Case and M. L. Cody, eds.), pp. 49–97. Univ. Calif. Press, Berkeley.

García, E., and Mosiño, P. A. 1969. Los climas de Baja California. Inst. Geofís. Univ. Nacl. Autónoma Méx. Memorias (1966–1967).

Grinnell, J. 1928. A distributional summation of the ornithology of Lower California. Univ. Calif. Publ. Zool. 32:1–300.

Hand, J. L. 1980. Human disturbance in Western Gull *Larus occidentalis livens* colonies and possible amplification by intraspecific predation. Biol. Conserv. 18:59–63.

Hand, J. L., Hunt, G. L., and Warner, M. 1981. Thermal stress and predation: Influences on the structure of gull colony and possibly on breeding distributions. Condor 83:193–203.

Jiménez, C. C. 1989. Hábitos alimenticios, requerimiento energético y consumo alimenticio del pelícano café (*Pelecanus occidentalis*) en La Bahía de La Paz, B. C. S., México. Thesis, Univ. Autónoma B. C. S, La Paz.

Maldonado, D., and Sánchez, M. L. 1994. Estrategia reproductiva de *Nycticorax violaceus bancrofti* (Huey, 1927) (Aves: Ardeidae) en el manglar "El Conchalito," Ensenada de la Paz, B. C. S. Thesis, Univ. Autónoma B. C. S., La Paz.

Mendoza, S. R. 1994. Anidación del gallito marino californiano (*Sterna antillarum browni*) y manejo de una de sus áreas de reproducción en el región de La Paz, B. C. S. Master's thesis, CICIMAR, Inst. Politécnico Nacl., México.

Spear, L. B., and Anderson, D. W. 1989. Nest-site selection by Yellow-footed Gulls. Condor 91:91–99.

Velarde, E. 1992. Predation of Heermann's Gull (*Larus heermanni*) chicks by Yellow-footed gulls (*Larus livens*) in dense and scattered nesting sites. Colonial Waterbirds 15:8–13.

Velarde, E., and Anderson, D. W. 1994. Conservation and management of seabird islands in the Gulf of California: Setbacks and successes. Int. Council Bird Preserv. Tech. Publ. 721–767.

Wilbur, S. R. 1987. Birds of Baja California. Univ. Calif. Press, Berkeley.

Zárate, B. 1995. Biologia reproductiva de la gaviota de patas amarillas *Larus livens* en Isla Gaviota y evaluación de su estado reproductivo en la Bahía de La Paz, B. C. S., durante 1990. Thesis, Univ. Autónoma B. C. S., La Paz.

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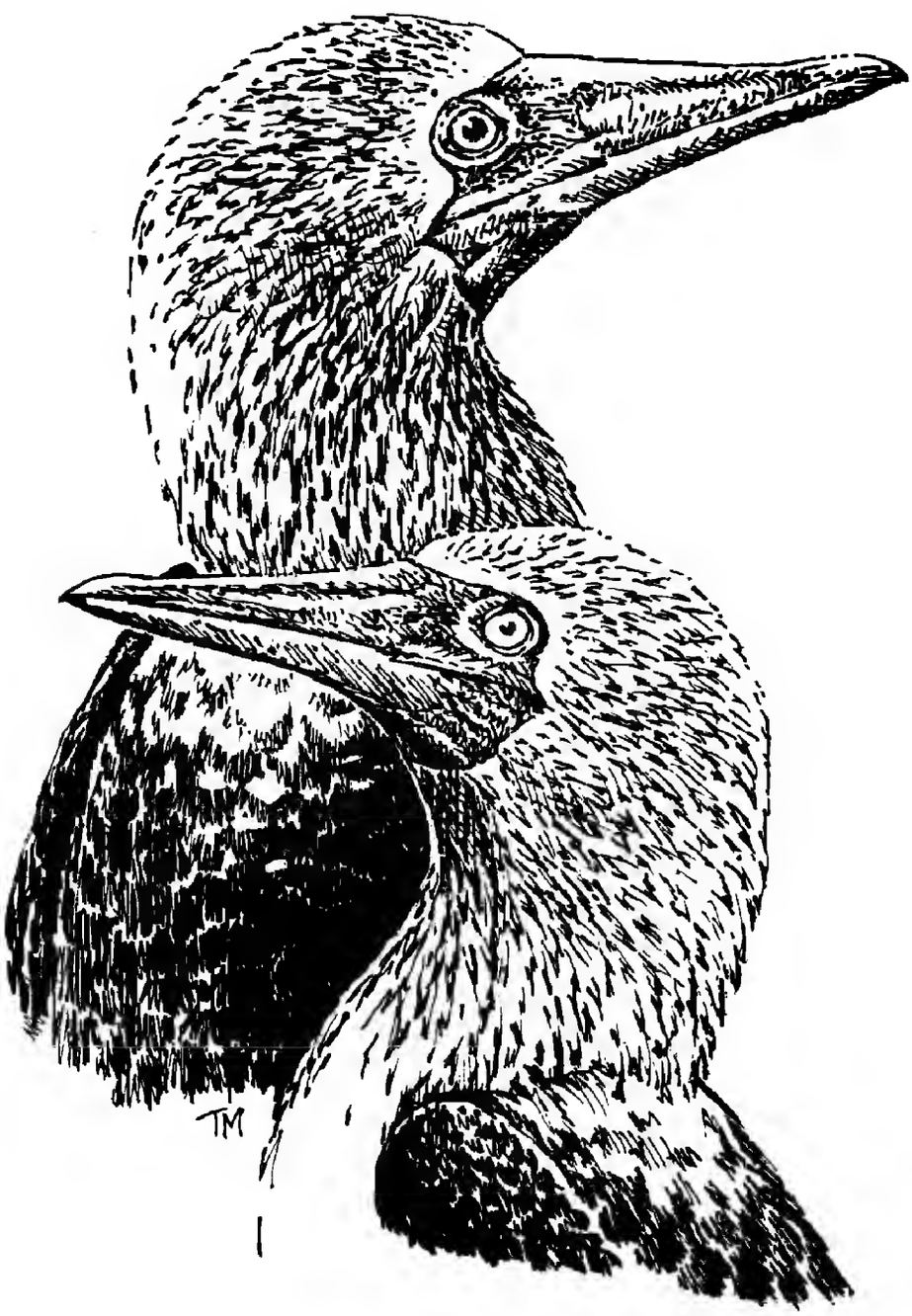

Blue-footed Boobies *Sketch by Tim Manolis*

FIRST DOCUMENTED BREEDING OF THE EURASIAN SKYLARK IN ALASKA

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Introduced, resident populations of the Eurasian Skylark, nominate *Alauda arvensis arvensis*, breed locally on southern Vancouver Island, British Columbia, and the San Juan Islands, Washington. (AOU 1983: 488). In Alaska, the species occurs naturally as an annual rare migrant and casual summer visitant to the western Aleutian Islands (Near Islands group) and a casual migrant and summer visitant to St. Lawrence Island and the Pribilof Islands, in the Bering Sea (Kessel and Gibson 1978; Byrd et al. 1978; Gibson 1981). All Alaska specimens are of the northeast Asiatic form *A. a. pekinensis*, which breeds as far east as the Koryak Highlands, Kamchatka, and the Kurile Islands (fide D. D. Gibson, University of Alaska Museum; Vaurie 1959; Portenko 1963). Breeding has been suspected in Alaska (twelve birds, including a singing male, at St. Paul Island, 1–9 July 1970; Kessel and Gibson 1978), but there has been no solid evidence of breeding, and no skylarks have previously been identified as females in the field. Here we report the first evidence of breeding by the Eurasian Skylark in Alaska and the first evidence of breeding by non-introduced skylarks in North America.

On 22 May 1995 we were leading a bird tour group of 20+ people at St. Paul Island, Pribilof Islands, Alaska, when Toochin heard the song of a Eurasian Skylark. Upon locating the bird he discovered that there were several birds singing over an open grassy area along the road 0.5 km north of the St. Paul airport. It was a clear day, and our group watched the birds perform dramatic flight songs and chase each other about for an hour, often at very close range. We soon determined that there were three singing males and another bird whose behavior suggested a female. The presumed female skylark gathered dead grass at one location, then flew 20 m and deposited the material at another location. This circuit, from the gathering spot to the depositing spot, was repeated many times as we watched. One male skylark stayed very close to the female, following her back and forth on this circuit. The male did not gather any nest material; instead, he sang while hovering over the female as she collected material and sang from a raised mound near the depositing site. The other male skylarks occasionally approached too near the female during their display flights, and the attending male immediately drove them away, then returned to the female. We assumed that the female was building a nest. We returned to the location several times during the ensuing three days, sometimes finding singing males, sometimes finding no skylarks, but we did not again find the female.

Shortly before departing the island on 26 May, we returned to the site again and found the nest with four eggs 20 m west of the road (Figure 1). The eggs were dark olive-green and completely covered with fine dark brown specks, heaviest on the larger end. The nest was a deep cup built on the ground in a tussock of tall grass, and it was constructed of coarse stalks with a lining of finer grass woven into the lower portions. Although the nest was in a clump of tall grass, its top was not hidden, and it was open to a southern exposure. We lacked instruments, so were unable to measure the nest or eggs. Several people with the tour photographed and videotaped the nest (photos on file at the University of Alaska Museum). Both birds were in attendance, the male singing and displaying the entire time, and as we departed the area the female flew to the nest, presumably to incubate the eggs. Our findings concur with the details of skylark nesting habits detailed by Cramp (1988).

We reported the skylark nest to Sean D. Smith, tourism director of St. Paul Tours, and he monitored the nest for several days after 26 May. Unfortunately he found no sign of eggs or egg shells at the nest on 30 May. It is highly likely that the eggs fell prey to Arctic Foxes (*Alopex lagopus*), which are common on the island. The skylarks continued to be seen, and on 16 June M. Danzenbacker (pers. comm.) found another nest in the same area only 1 m from the road. This nest contained three nestlings approximately one week old. Two adult skylarks were seen in the vicinity of the nest. Both were carrying food and were quite agitated by the observer's presence. No nestlings were found at or near this nest on 19 June. Although skylarks leave the nest within 7 to 11 days of hatching (Cramp 1988), it is likely that this nest also fell prey to Arctic Foxes, as the adults and juveniles should have been nearby. Sklylarks were last seen around the St. Paul airport on 22 June.

We thank Sean D. Smith for following up and sharing his observations of the skylark nests after our tour departed St. Paul Island. We also thank Mike Danzenbaker for sharing his observations of the second skylark nest. We thank Daniel D. Gibson and an anonymous reviewer for making useful suggestions to the text.

LITERATURE CITED

American Ornithologists' Union. 1983. Checklist of North American Birds, 6th ed. Am. Ornithol. Union, Lawrence, KS.

Byrd, G. V., Trapp, J. L., and Gibson, D. D. 1978. New information on Asiatic birds in the Aleutian Islands, Alaska. 1978. Condor 80:309–315.

Figure 1. Eurasian Skylark nest on St. Paul Island, Alaska, May 1995.

Photo by Mike Toochin

Cramp, S. (ed.). 1988. The Birds of the Western Palearctic, Vol. 5. Oxford Univ. Press, Oxford, England.

Gibson, D. D. 1981. Migrant birds at Shemya Island, Aleutian Islands, Alaska. Condor 83:65–77.

Kessel, B., and Gibson, D. D. 1978. Status and distribution of Alaska birds. Studies Avian Biol. 1.

Portenko, L. A. 1963. The ornithogeography of the Koryak Highlands (U.S.S.R.). Proc. XIII Int. Ornithol. Congr. (1962):1140–1146.

Vaurie, C. 1959. The Birds of the Palearctic fauna, Vol. 1, Passeriformes. H. F. & G. Witherby, London.

Accepted 25 March 1996

A RECORD OF THE ROSEATE SPOONBILL ON THE PACIFIC COAST OF THE PENINSULA OF BAJA CALIFORNIA

EDGAR AMADOR and JUAN JOSE RAMIREZ, Centro de Investigaciones Biológicas del Noroeste, S. C., División de Biología Marina, Apdo. Postal 128, La Paz, Baja California Sur 23000, México

On 18 March 1994, we observed and photographed a single Roseate Spoonbill (*Ajaia ajaja*) at Estero de Rancho Bueno (29° 19′ N, 111° 29′ W), Baja California Sur, Mexico. The bird was in breeding plumage and was roosting in the mangroves near the head of the estero. The photograph, on file at the Centro de Investigaciones Biológicas, La Paz, shows the spatulate bill, pale pink body plumage, and contrastingly bright pink shoulders, but the image is too small to be reproduced well for publication. Located at the southern end of the Bahía Magdalena–Bahía Almejas complex on the Pacific coast, the Estero de Rancho Bueno is a coastal lagoon, 11 km long and averaging 300 m wide, fringed by mangroves (*Rhizophora mangle*, *Laguncularia racemosa*, and *Avicennia germinans*).

On the Pacific coast of mainland Mexico the Roseate Spoonbill is resident from extreme southern Sonora (Knoder et al. 1980, Peterson and Chalif 1973, E. Palacios and E. Mellink pers. comm.) to Chiapas (A.O.U. 1983). In Baja California Grinnell (1928) described this species as a sporadic postbreeding summer visitor to the delta of the Colorado River, although there are no recent records for this area (Wilbur 1987). The only other record of the Roseate Spoonbill for the peninsula is for the east coast of Baja California Sur, where Fernández et al. (1993) observed a single individual in first fall plumage in the Ensenada de La Paz (24° 06′ N, 110° 23′ W) on 7 December 1992. Therefore our observation represents the second sight record of the Roseate Spoonbill in Baja California Sur and the first for the Pacific coast of the peninsula.

During our surveys of Estero de Rancho Bueno, from November 1993 to June 1994, this was our only observation of a Roseate Spoonbill, so we presume the bird was a vagrant. Outside of its usual distribution the species has been recorded irregularly north to central California, U.S.A., mainly in late summer and early fall (Small 1994).

We thank Eduardo Palacios and Leopoldo A. Moreno-Matiela for improving this note.

LITERATURE CITED

American Ornithologists' Union. 1983. Check-list of North American Birds, 6th ed. Allen Press, Lawrence, KS.

Fernández, G., Carmona, R., and Brabata, G. 1993. Primer registro de *Ajaia ajaja* (Threskiornithidae) en la Peninsula de Baja California, México. Rev. Inv. Cient. 4:111–113.

Grinnell, J. 1928. A distributional summation of the ornithology of Lower California. Univ. Calif. Publ. Zool. 32:1–300.

Knoder, E., Plaza, P., and Sprunt, A. 1980. Status and distribution of the Jabiru Stork and other water birds in western Mexico, in The Birds of Mexico: Their Ecology and Conservation (P. Schaeffer and S. Ehlers, eds.). Proc. Natl. Audubon Soc. Symp.

Peterson, R. T., and Chalif, E. L. 1973. A Field Guide to Mexican Birds. Houghton Mifflin, Boston.

Small, A. 1994. California Birds: Their Status and Distribution. Ibis, Vista, CA.
Wilbur, S. R. 1987. Birds of Baja California. Univ. Calif. Press, Berkeley.

Accepted 25 November 1995

BIMONTHLY JOURNAL ON FIELD ORNITHOLOGY

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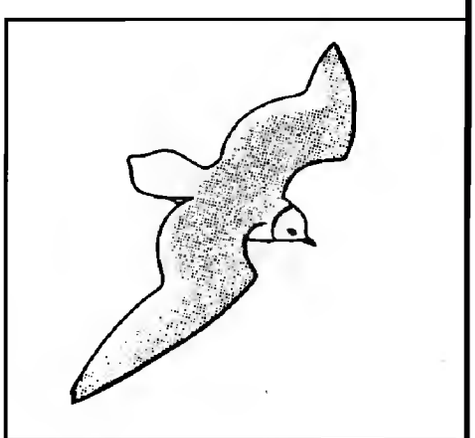

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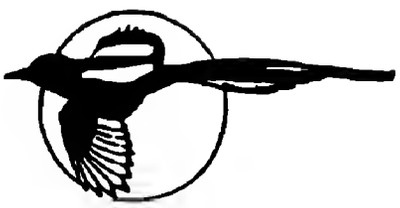

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Colorado Field Ornithologists

ESTES PARK, COLORADO

14–16 June 1996

1996 JOINT CONVENTION OF THE COLORADO FIELD ORNITHOLOGISTS AND WESTERN FIELD ORNITHOLOGISTS

Headquarters: YMCA of the Rockies, Estes Park Conference Center, Estes Park, Colorado 80511; phone 800-777-9622.

You are cordially invited to attend this very special convention in Estes Park, Colorado, bringing together birders from across western North America. This will be the 34th annual CFO convention and the 21st annual meeting of WFO. Members of the newly formed Estes Park Bird Club are assisting with program arrangements. The event is well timed, immediately preceding the American Birding Association convention in Park City, Utah, which runs from 17 to 23 June.

Tentative schedule:

Friday, 14 June 1996

5:30 AM Field trip: Wild Basin, south Rocky Mountain National Park; meet at YMCA, bring your own lunch.

6:00 AM Field trip: Pawnee National Grassland; meet at Crow Valley Campground, a 2-hour drive from Estes Park. Bring your own lunch.

3:00 PM Check-in: YMCA, Estes Park. Dinner on your own, available at the YMCA.
6:00 PM Bird art show preview, YMCA.
6:30 PM Six-shot slide show, best of members' works. Bring your best bird photos! YMCA.
7:30 PM WFO and CFO board of directors' meetings, YMCA.

Saturday, 15 June 1996

5:00 AM Field trip: Continental Divide and Endo Valley, Rocky Mountain National Park; sack breakfast provided.
11:30 AM Lunch, YMCA, Estes Park.
12:30 PM Bird art show opens, YMCA.
1:00 PM Convention papers session, YMCA.
4:30 PM California Bird Records Committee, discussion of selected records decisions, YMCA.
4:45 PM Colorado Bird Records Committee, discussion of selected records decisions, YMCA.
5:00 PM WFO bird identification panel, YMCA.
7:00 PM Banquet and speaker, Park Village Playhouse, 900 Moraine Ave., Estes Park.

Sunday, 16 June 1996

5:00 AM Field trips: Wild Basin, Sylvandale Ranch, Continental Divide, and Endo Valley, Rocky Mountain National Park; (possible repeat) Pawnee National Grassland. Sack breakfast and lunch provided.

Rocky Mountain National Park: A wilderness of some of the most spectacular mountain scenery in the world, offering an abundance of birds in a variety of habitats. Target species will include the White-tailed Ptarmigan, Three-toed Woodpecker, and Brown-capped Rosy Finch. Also expected are the Red-naped and Williamson's Sapsuckers, American Pipit, Hammond's, Dusky, Willow, and Olive-sided Flycatchers, Broad-tailed Hummingbird, Pine Grosbeak Cassin's Finch, and American Dipper. Other possibilities include the Northern Goshawk, Blue Grouse, and Boreal Owl.

Pawnee National Grassland: This picturesque short-grass prairie of northeastern Colorado is favored by many, not only for the special breeding birds found there, but also because eastern vagrants are often discovered in the isolated wooded areas and water sources. We should see the Mountain Plover, Chestnut-collared and McCown's Longspurs, and possibly Long-billed Curlew. Also to be found are the Brown Thrasher, Lark Bunting, Brewer's, Vesper, Cassin's, and Grasshopper Sparrows, and Eastern and Western Kingbirds.

WESTERN BIRDS

Quarterly Journal of Western Field Ornithologists

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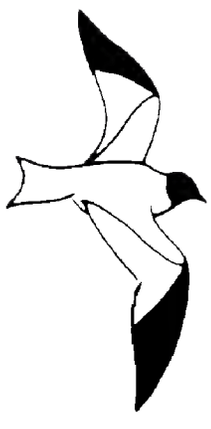

WESTERN BIRDS

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Cover photo by © Alan Walther of San Jose, California: Black Skimmer *(Rhynchops niger)*, Charleston Slough, Mountain View, California, August, 1995.

Western Birds solicits papers that are both useful to and understandable by amateur field ornithologists and also contribute significantly to scientific literature. The journal welcomes contributions from both professionals and amateurs. Appropriate topics include distribution, migration, status, identification, geographic variation, conservation, behavior, ecology, population dynamics, habitat requirements, the effects of pollution, and techniques for censusing, sound recording, and photographing birds in the field. Papers of general interest will be considered regardless of their geographic origin, but particularly desired are reports of studies done in or bearing on the Rocky Mountain and Pacific states and provinces, including Alaska and Hawaii, western Texas, northwestern Mexico, and the northeastern Pacific Ocean.

Send manuscripts to Philip Unitt, San Diego Natural History Museum, P.O. Box 1390, San Diego, CA 92112. For matter of style consult the Suggestions to *Contributors to Western Birds* (8 pages available at no cost from the editor) and the *Council of Biology Editors Style Manual* (available for $24 from the Council of Biology Editors, Inc., 9650 Rockville Pike, Bethesda, MD 20814).

Reprints can be ordered at author's expense from the Editor when proof is returned or earlier.

Good photographs of rare and unusual birds, unaccompanied by an article but with caption including species, date, locality and other pertinent information, are wanted for publication in Western Birds. Submit photos and captions to Photo Editor. Also needed are black and white pen and ink drawings of western birds. Please send these, with captions, to Graphics Manager.

WESTERN BIRDS

Volume 27, Number 3, 1996

NINETEENTH REPORT OF THE CALIFORNIA BIRD RECORDS COMMITTEE: 1993 RECORDS

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SCOTT B. TERRILL, H. T. Harvey & Associates, P. O. Box 1180, Alviso, California 95002

This report covers 180 records of 69 species submitted by 174 observers and evaluated by the California Bird Records Committee (hereafter the Committee or CBRC). Of these, 145 records were accepted, for an acceptance rate of 81%. Records from 1979 to 1994 are included, but the great majority are from 1993. Top honors among the counties go to San Diego with 15 accepted records, followed closely by San Francisco (14, all from SE Farallon I.), Santa Barbara (14), Monterey (13), Inyo (13), Orange (12), Los Angeles (12), and Marin (11).

One species, the Manx Shearwater (*Puffinus puffinus*), is added to the California state list, and one species, the Greater Shearwater (*P. gravis*), is removed following reconsideration of a previously accepted record. The list of native species thus stands at 582 (following AOU 1995); an additional eight nonnative species with well-established populations are also included on the California list maintained by the Committee. Other highlights from 1993 include two Red-tailed Tropicbirds (*Phaethon rubricauda*) in *winter*, one Gyrfalcon (*Falco rusticolus*), one Little Curlew (*Numenius minutus*), one Groove-billed Ani (*Crotophaga sulcirostris*), *three* Sulphur-bellied Flycatchers (*Myiodynastes luteiventris*), one Dusky Warbler (*Phylloscopus fuscatus*), one Rustic Bunting (*Emberiza rustica*), far northern records of the Broad-billed Hummingbird (*Cynanthus latirostris*) and Dusky-capped Flycatcher (*Myiarchus tuberculifer*), a wintering Blue-winged Warbler (*Vermivora pinus*), and record numbers of Zone-tailed Hawks (*Buteo albonotatus*; 11), and Philadelphia Vireos (*Vireo philadelphicus*; 10). Potential first state records of the Dark-rumped Petrel (*Pterodroma phaeopygia*), Common Greenshank (*Tringa nebularia*), Bridled/Gray-

backed Tern (*Sterna anaethetus/lunata*), and Common Chaffinch (*Fringilla coelebs*) were not accepted.

Committee News. A new bylaw was adopted at the January 1996 meeting in Camarillo. Records not accepted by the Committee that were formerly categorized as "identification questionable" will now be labeled "identification not established." This more accurately states the Committee's position on most of these records, where the identification may well have been correct, but the documentation was insufficient to substantiate the record. This situation unfortunately occurs more often than it should. Detailed notes and drawings made at the time of observation, supplemented by photos, video, or tape recordings greatly enhance the documentation of a record. Taking detailed notes is a great exercise in and of itself, and it enhances details of the observation for the observer and increases the learning curve. Readers should refer to Dittmann and Lasley (1992) for a more complete discussion of this issue.

At recent meetings, many Committee members have expressed their desire to evaluate records of taxa below the species level that are generally considered identifiable in the field. Some of these taxa will likely be considered species in the future. Recognizing the many complications of such an endeavor, the Committee will move deliberately. At this time, we wish to announce our interest in the matter and to solicit documentation of taxa below the species level that meet the Committee's general "rarity guideline" for species (i.e., an average of four or fewer records per year). Evaluation and publication of such records may follow a different path than species-level records, with interested Committee members, or others, taking the lead on any particular taxon. For starters, we request descriptions and/or photographs of any of the following taxa seen in California, now or in the past; reports of all have been "published" in one form or another.

Bewick's Swan (*Cygnus columbianus bewickii*)
American Brant (*Branta bernicla hrota*)
Eurasian Whimbrel (*Numenius phaeopus phaeopus/variegatus*)
Siberian Common Tern (*Sterna hirundo longipennis*)
Long-billed Murrelet (*Brachyrhamphus marmoratus perdix*)
Eastern Winter Wren (*Troglodytes troglodytes hiemalis/pullus*)
Eastern Hermit Thrush (*Catharus guttatus faxoni*)
"Japanese" Pipit (*Anthus rubescens japonicus*)
Eastern Bell's Vireo (*Vireo bellii belli/medius*)
Blue-headed Vireo (*Vireo s. solitarius/alticola*)
Yellow Palm Warbler (*Dendroica palmarum hypochrysea*)
White-winged Junco (*Junco hyemalis aikeni*)
Eastern Purple Finch (*Carpodacus p. purpureus*)

At the 1995 and 1996 meetings, plans were discussed for a book to summarize all of the Committee's deliberations since its inception in 1970. Preparation is now underway, and a publication date within about a year has been targeted. Also, it was decided to initiate a numbering system for publications prepared by the Committee or based primarily upon the Committee's archives. The numbering will be retroactive, to include all

previous publications. This report, therefore, is CBRC Contribution 37; previous publications will be listed in the Committee's book.

Records currently under review by the Committee include potential first state records of the Light-mantled Albatross (*Phoebetria palpebrata*) off Marin Co., Bulwer's Petrel (*Bulweria bulwerii*) at the Salton Sea, Black Vultures (*Coragyps atratus*) from Butte and Humboldt counties, Crested Caracaras (*Caracara plancus*) from Imperial and San Diego counties, Red-legged Kittiwake (*Rissa brevirostris*) from Orange Co., Swallow-tailed Gull (*Creagrus furcatus*) off San Francisco Co., Ivory Gull (*Pagophila eburnea*) from Orange Co., Lanceolated Warbler (*Locustella lanceolata*) from SE Farallon I., and Arctic Warbler (*Phylloscopus borealis*) from Monterey Co. Also under review are recent records of Harris' Hawks (*Parabuteo unicinctus*) from southern California, with the welcome potential of removing the "extirpated" symbol that currently follows the species' name on the state list (Binford 1986, CBRC 1991). Recent taxonomic decisions by the AOU (1995) still have not rescued the CBRC from its Iceland Gull (*Larus glaucoides*) dilemma (see Heindel and Garrett 1995). Note also that there are no documented claims in California of Bicknell's Thrush (*Catharus bicknelli*), Eastern Towhee (*Pipilo erythrophthalmus*), or Saltmarsh Sharp-tailed Sparrow (*Ammodramus caudacutus*), newly recognized as species.

The Committee's membership at the close of the 1996 meeting was Michael A. Patten (Secretary), Matthew T. Heindel (Vice-Secretary), Kimball L. Garrett, Steve N. G. Howell, Guy McCaskie, Joseph Morlan, Peter Pyle, Mike San Miguel, Daniel S. Singer, and Terrill.

CBRC Functions. All records reviewed by the CBRC are archived at the Western Foundation of Vertebrate Zoology, 439 Calle San Pablo, Camarillo, CA 93012. All written documentation, photographs, voice recordings, and videotapes are housed there, catalogued, organized by CBRC record number, and are available for public review. The CBRC solicits information on all occurrences in California of species on its Review List (see Roberson 1993a), as well as species unrecorded in California, and requests that documentation be sent to Michael A. Patten, CBRC Secretary, P. O. Box 51959, Riverside, CA 92517-2959. Documentation concerning the potential establishment of exotic species not currently on the state list is also sought. Heindel and Garrett (1995) and Patten et al. (1995) provided further details on the Committee's functions.

Format and Abbreviations: The format of these reports is now largely standardized. In general, records are listed either geographically, from north to south, or chronologically by first date of occurrence. Included with each record is the location, county abbreviation (see below), and date span. The date span generally follows that published in *American Birds/National Audubon Society Field Notes* (*NASFN*). If the CBRC accepts a date span that differs from that in a published source, the differing dates are italicized. Initials of the observer(s) responsible for the record, if known, are followed by a semicolon, then the initials of additional observers submitting documentation, then the CBRC record number. All records are sight records unless otherwise noted. Initials followed by a dagger (†) indicate the observer supplied an identifiable photograph. Similarly, (‡) is used to designate videotape, and (§) for voice recording. The symbol "#" indicates a specimen

record, and is followed by the acronym (see below) of the institution housing the specimen and the specimen number.

An asterisk (*) prior to a species name indicates that it is no longer on the Review List. The number in parentheses following the species' name is the number of records accepted by the CBRC through this reporting period. Two asterisks (**) after this number indicate that the number of accepted records is limited to a restricted review period or includes records accepted for statistical purposes only (see Roberson 1986 for more information).

When an individual bird returns to a locality after an absence (for example, in consecutive winters), or is continuously present for multiple years, each subsequent occurrence, or presence in a new calendar year, is reviewed as a new record. The Committee judges, by a majority vote, whether or not the same individual is involved. If a majority of the Committee considers it to be the same bird, that information is included in the comments, and the total number of records remains unchanged.

Although the Committee does not formally resolve identification issues below the species level, comments on age, sex, or subspecies are often included. The authors of this report assume responsibility for all such comments, although they are usually based on input provided by Committee members during circulation of the record and the draft Committee report.

The Committee uses the following codes for California counties: ALA, Alameda; ALP, Alpine; AMA, Amador; BUT, Butte; CLV, Calaveras; COL, Colusa; CC, Contra Costa; DN, Del Norte; ED, El Dorado; FRE, Fresno; HUM, Humboldt; IMP, Imperial; INY, Inyo; KER, Kern; KIN, Kings; LAK, Lake; LAS, Lassen; LA, Los Angeles; MAD, Madera; MRN, Marin; MRP, Mariposa; MEN, Mendocino; MER, Merced; MOD, Modoc; MNO, Mono; MTY, Monterey; NAP, Napa; NEV, Nevada; ORA, Orange; PLA, Placer; PLU, Plumas; RIV, Riverside; SAC, Sacramento; SBT, San Benito; SBE, San Bernardino; SD, San Diego; SF, San Francisco; SJ, San Joaquin; SLO, San Luis Obispo; SM, San Mateo; SBA, Santa Barbara; SCL, Santa Clara; SCZ, Santa Cruz; SHA, Shasta; SIE, Sierra; SIS, Siskiyou; SOL, Solano; SON, Sonoma; STA, Stanislaus; SUT, Sutter; TEH, Tehama; TRI, Trinity; TUL, Tulare; TUO, Tuolumne; VEN, Ventura; YOL, Yolo; YUB, Yuba.

Museums that have allowed Committee members access to specimens or that have provided information or house specimens cited herein are as follows: MVZ, Museum of Vertebrate Zoology, University of California, Berkeley; SBCM, San Bernardino County Museum, Redlands. Other museums used regularly by Committee members include the California Academy of Sciences in San Francisco, the Natural History Museum of Los Angeles County, and the San Diego Natural History Museum.

Other abbreviations used are AFB, Air Force Base; I., island; L., lake; Mt., mountain; NP, National Park; n. miles, nautical miles; NWR, National Wildlife Refuge; Pt., point; Reg., Regional; R., river; SB, State Beach; and SP, State Park.

Seabirds. With the addition and deletion to the state list mentioned above, and with several other records of extreme rarities discussed in both the "Accepted" and "Not Accepted" sections below, this group of birds is well represented in this report. Therefore, a few general comments are warranted.

Because of the difficulty of access to much of offshore California, especially very deep waters, a large percentage of seabird observations are from research vessels. Given the often difficult conditions at sea, the quality of seabird observations is sometimes marginal. In addition, individuals are often busy collecting data, which can reduce opportunities to document a rare bird. As a result, seabird records are probably accepted at a lower rate than in other groups of birds. Exacerbating this problem may be the fact that identification criteria are still rudimentary in some groups. Finally, some observations may not be submitted because of a lack of understanding of the 200-nautical-mile U.S. fishery limit that the Committee follows (Roberson 1993b). This boundary extends well into waters west of northern Mexico (Figure 1). Communication between the CBRC and researchers has been somewhat lacking and, thus, record submittal and documentation of rare seabirds has been rather erratic. We are currently taking steps to increase communication with seabird researchers, and hope this effort will be productive for California ornithology.

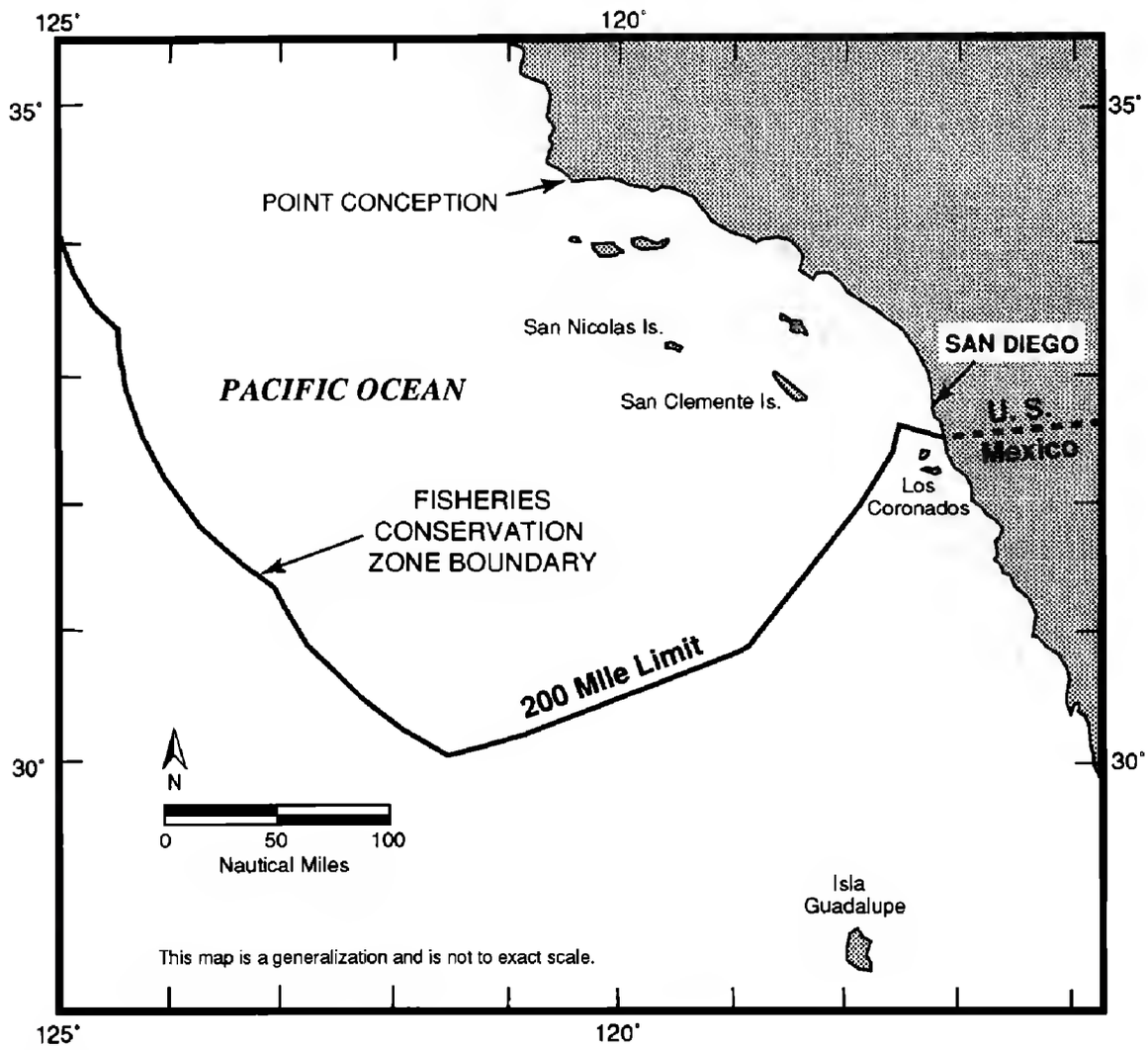

Figure 1. The 200-nautical-mile U.S. fisheries conservation zone and CBRC coverage area off southern California.

RECORDS ACCEPTED

MANX SHEARWATER *Puffinus puffinus* (4). This Atlantic seabird was added to the California list on the basis of multiple accepted reports in 1993; even more individuals were seen in 1994 (*NASFN* 49:96, 100; CBRC unpubl. data). In the Monterey Bay area, MTY, single birds were on Monterey Bay 25 July 1993 (JMD†; 81-1994; photo in Roberson 1996), 2 miles W of Pt. Joe 29 Aug 1993 (Figures 2 and 3; JMD†, JL†, RN†; 132-1993; color photo in *Am. Birds* 48:161, additional photos in Roberson 1996), 8 miles W of Moss Landing 5 Sep 1993 (LL‡; 16-1994), and 1.5 miles W of Cypress Pt. 22 Sep 1993 (JLD, DJA, RAB; 15-1994). At SE Farallon I., SF, a single bird was seen on 31 Aug 1993 (PP, SNGH; 138-1993). Another record from Monterey Bay was not accepted (see Records Not Accepted, Identification Not Established), and several additional reports (*Am. Birds* 48:147) have not been submitted. The actual number of birds involved in this relatively small area is unknown, but the Committee considers the accepted records to represent at least four birds: one at SE Farallon I., and three in Monterey Bay. The state of molt assisted in the evaluation of the birds photographed off Monterey. The extent of black spotting on the longest axillars in the photographs and videotapes suggests that first-year or possibly second-year birds were involved (Baker 1993; Pyle in comments); the August Monterey bird was molting remiges, indicating it was at least a year old.

Reports of small white-vented shearwaters off California have accumulated since at least 1970 (*Am. Birds* 25:100, Garrett and Dunn 1981), and the debate over such birds has often been contentious. Roberson (1996) summarized recent records of known and probable Manx Shearwaters in the Pacific Ocean suggesting a significant range expansion. The majority of the 1993 birds were first identified as other shearwaters (Black-vented, *P. opisthomelas*, Townsend's, *P. a. auricularis*, or Newell's, *P. a. newelli*), however, demonstrating the rapid evolution of identification criteria for small dark-and-white shearwaters in the North Pacific; compare also comments by Roberson (1980, 1985, 1986), Dunn (1988), Langham (1991), Yee et al. (1994), and Heindel and Garrett (1995) on previous records of this and similar species not accepted by the Committee. Prepublication drafts of recent identification articles by Howell et al. (1994) and Roberson (1996) circulated with these records, helping to ease the minds of reluctant Committee members. Nevertheless, several members expressed nagging concerns that California birds are not completely typical of Atlantic Manx Shearwaters and might even represent some unknown taxon (skeptics should consider the recent description of *P. atrodorsalis* by Shirihai et al. 1995). In particular, California birds were initially perceived as having too extensive white flank patches, a notion discussed and dismissed by Roberson (1996) and others (CBRC members in comments). Figures 2 and 3, of the same bird, clearly show that the extent of these patches is subject to feather placement; a fuller understanding of this issue is desired.

Critical for the review of this species were a number of exceptional photographs, first examined and correctly identified by Roberson, Morlan, and others. Mike Danzenbaker especially is to be commended. He has returned to sea time and time again to amass an important series of photographs of many species.

A problem associated with these records also needs mentioning. Of the first three Monterey records, *none* included a written description. That two boat-loads of birders could fail to submit a single description of a species not even on the state list (the first bird was actually passed over as a Black-vented Shearwater and the subsequent birds were initially identified as Townsend's Shearwaters) is a disappointment to the Committee (see also comments by Yee et al. 1994). Boat trip participants, regardless of their level of experience, are strongly encouraged to document any rarities encountered on organized boat trips. The documentation submitted by an individual may be all that is received on a given sighting.

Figure 2. Manx Shearwater off Monterey, 29 August 1993 (132-1993). The species was added to the state list in 1993.

Photo by J. Michael Danzenbaker

Figure 3. Manx Shearwater off Monterey, 29 August 1993 (132-1993). Note the change in flank pattern on this individual depending upon its position.

Photo by J. Michael Danzenbaker

WEDGE-RUMPED STORM-PETREL *Oceanodroma tethys* (6). One was approximately 52 n. miles SSW of San Miguel I., SBA (ca. 33° 26′ N, 121° 22′ W), on 5 Oct 1992 (RRV; 29-1994). Accepted records are now evenly divided between the Monterey Bay area and waters off the Channel Islands. Except for the first, of a storm-driven waif picked up in Carmel, MTY, 21 Jan 1969 (Yadon 1970, Luther 1980), all records are from 23 Jul to 9 Oct.

RED-TAILED TROPICBIRD *Phaethon rubricauda* (10). A subadult was approximately 130 n. miles SW of San Nicolas I., VEN (ca. 31°18′ N, 120°40′ W), on 14 Jan 1993 (PP; 30-1993; photos included generally not considered adequate to document the record), and an adult was approximately 161 n. miles WSW of San Nicolas I., VEN (ca. 31° 28′ N, 122° 06′ W) on 16 Jan 1993 (PP†; 31-1993). These represent the first winter records for California, although the maps by Gould et al. (1974) have long suggested the possibility of such occurrences. All previous records were in the three-month period from 3 Jul to 8 Oct.

BLUE-FOOTED BOOBY *Sula nebouxii* (74**). One was at the north end of the Salton Sea, RIV, 25 July 1993 (RLM; 139-1993). Nearly all previous incursions at the Salton Sea have been of multiple birds (McCaskie 1970, Garrett and Dunn 1981). To the east, however, one was found in northern Arizona near Cameron on 27 Jul 1993 (*Am. Birds* 47:1133).

The crumbling of California booby dogma, noted by Patten and Campbell (1992), has continued. In the early 1970s, the Masked (*S. dactylatra*) and Red-footed (*S. sula*) boobies remained unrecorded in the state, and the Blue-footed Booby was not even on the CBRC review list. In contrast, accepted records since 1985 total Brown 17, Red-footed 8, Blue-footed 6, and Masked 4. Additional Masked Boobies were observed off northern Baja California at Islas Los Coronados 23 April 1988 (Everett and Teresa 1988) and at Isla Guadalupe 20 Jan-9 Apr 1994 (Pyle et al. 1994, Guillén-H. et al. 1995).

BROWN BOOBY *Sula leucogaster* (42). An adult was at Santa Cruz, SCZ, 26 Sep 1991 (IA, EF; 177-1991), a juvenile was ca. 3 miles S of Pt. Vicente, LA, 18 Oct 1992 (KLG†; 14-1993), and an adult female seen intermittently at SE Farallon I., SF, 16 Aug–18 Oct 1993 (PP†; 203-1993) had been present at the same location 25 May–24 Nov 1992, when still an immature of unknown sex (162-1992; Heindel and Patten 1996). See comments concerning the changing status of this and other boobies under the Blue-footed Booby, above.

The first two records were controversial and required multiple circulations. Given age and geographic variation, and the fact that at least some of these tropical species may breed at almost any time of year (thus, all age classes and plumages are possible at any time of year), booby identification is often not as straightforward as the standard references suggest. Several Committee members called for the preparation of a detailed identification treatise on the group.

Descriptions of the Santa Cruz bird were contradictory, with one observer describing a "white throat." This was sufficient cause for some to believe that the possibility of the bird being a juvenile Masked Booby was too high. In the end, most members were willing to overlook details in the one description and rely primarily upon the other description, more thorough and deliberate.

The Los Angeles record generated a truer debate of identification criteria, as there was no question of what the bird actually looked like in the field. Concerns revolved primarily around the lack of an obvious breast/belly contrast and the possibility that the bird was actually a Red-footed Booby. Through three circulations it became well established that juvenile Brown Boobies can appear essentially uniform brown below for the first few months of life. On such birds, other characters of use in distinguishing them from the Red-footed Booby include heavier bill, yellowish legs and feet, white on

the flanks and underwing coverts and axillars, and, of less importance, the deeper intensity of brown above and larger size.

TRICOLORED HERON *Egretta tricolor* (11**). On the coast, an adult at the Tijuana R. estuary, SD, 22 Jan–5 Feb 1993 (GMcC; 74-1993) was followed by an immature at the same location 18 Dec 1993–19 Feb 1994 (GLR, MBS†; GMcC, PEL, SBT†; 49-1994), and what was judged to be the same immature on 23 May 1994 (MBS†; 112-1994). At the Salton Sea, immatures were south of the Salton Sea NWR headquarters, IMP, 15 Aug 1993 (AME; 127-1993) and at the Whitewater R. mouth, RIV, 1 Oct 1993 (RWH; 21-1994). These four birds represent the highest annual total since the species was added to the review list in 1990.

REDDISH EGRET *Egretta rufescens* (63). A returning adult with a deformed bill at the south end of San Diego Bay, SD, 10 Sep–27 Oct 1993 (GMcC; 32-1994) has been featured in almost every Committee report since its debut a decade ago (Roberson 1986; covering the bird's initial visit Dec 1982–Mar 1983). The Committee appreciates the persistence of observers documenting this bird year after year. This bird was an adult when first seen in 1982 (*Am. Birds* 37:337). Thus, when seen in the fall of 1993, it approximated the maximum known age of 12 years, 3 months reported for this species (Clapp et al. 1982).

An immature near Oasis Station, north end of the Salton Sea, RIV, 19 Dec 1993–20 Mar 1994 (PEL, CAM†, GMcC, MAP; 46-1994) makes only the fifth accepted record from the Salton Sea.

YELLOW-CROWNED NIGHT-HERON *Nyctanassa violacea* (16). Another Committee staple: the adult in the night-heron rookery at La Jolla, SD, 26 Dec 1992–23 Jan 1993 (PEL, GMcC; 28-1993) and later at San Elijo Lagoon, SD, 14 May 1993 (*NASFN* 47:453) has been seen annually since it was first reported as an adult in October 1981 (Binford 1985). The maximum known age for this species reported by Klimkiewicz and Futcher (1989) is only 6 years, 3 months, but the similar Black-crowned Night-Heron (*Nycticorax nycticorax*) is known to have reached 21 years, 1 month (Clapp et al. 1982).

TRUMPETER SWAN *Cygnus buccinator* (21). Two adults were in the Siskiyou County portion of Tule Lake NWR *27 Nov* 1993 (Figure 4; RE; 3-1994). The locations of accepted records are generally well scattered, but this is the seventh record from the Klamath Basin since 1984, representing more records than from any other location. It seems likely that some records involve returning individuals, but the possibility has not yet been seriously considered by the Committee.

KING EIDER *Somateria spectabilis* (33). A female at Año Nuevo State Reserve, SM, 28 Mar–4 Apr 1993 (RST†; 96-1993) fit the unusual pattern of distribution of this largely arctic species. The majority of records (20) are from central California (here defined as Sonoma through Monterey counties), and there are more records from southern California (7) than from northern (6).

ZONE-TAILED HAWK *Buteo albonotatus* (44). This species is currently increasing in California; 1993 produced more sightings than ever with 11 records accepted: an adult at Furnace Creek Ranch, Death Valley NP, INY, 11 Apr 1993 (DW; 106-1993); one in Santa Barbara, SBA, 28 Dec 1993–10 Jan 1994 (SEF†, PEL; 10-1994); an adult male at Ojai, VEN, 6 Sep 1993 (BS; 194-1993), considered the same as one there 28 Feb–8 Mar 1994 (BS†, BES; 71-1994; photo in *NASFN* 48:247); an adult at Malibu Creek SP, LA, 25 Apr 1993 (KFC, JN; 72-1993); an adult at Irvine Reg. Park, ORA, 26 Nov 1993 (BED; 182-1993), where one had been reported but not accepted the previous winter (122-1993; Heindel and Patten 1996); an adult in Lake Forest, ORA, 13 Nov–19 Dec 1993 (JEP; CB, BED, VL; 35-1994); an adult male in Mission Viejo, ORA, 18 Dec 1993–13 Mar 1994 (KPL; RAE, RAH, CAM,

GMcC; 8-1994); an adult female in Laguna Beach, ORA, 15 Aug 1993–*mid January 1994* (Figure 5; GSt†; AAS; 135-1993), considered probably not the same as one in Laguna Beach 22–30 Oct 1988 (70-1989; Pyle and McCaskie 1992); an adult over Pines Park, Dana Point, ORA, 11 Jan 1993 (JEP; 39-1993); a returning adult at Hot Springs Mt., SD, 26 Jun 1993 (GMcC, TC; 143-1993); and a returning adult at Santee Lakes Reg. Park, SD, 6 Nov 1993-9 Feb 1994 (WEH; 33-1994). The Santa Barbara, Ventura, and Los Angeles county records are the first to be accepted for the coastal slope north of Orange County.

In previous years, an adult in the vicinity of Whelan L., Oceanside, SD, 22 Dec 1990 (GMcC; 2-1991) was considered probably different from previous records in the area, an adult was at Santee Lakes Reg. Park, SD, 2–3 Nov 1991 (TC; GD; 34A-1992), and an immature was at the same location 15 Jan–3 Feb 1992 (TC; GMcC, JR; 34B-1992).

GYRFALCON *Falco rusticolus* (7). A gray-morph immature in the Smith R. bottoms near Fort Dick, DN, 23 Dec 1993–20 Feb 1994 (RAE, SEF, DF, GSL†; 62-

Figure 4. Trumpeter Swans at Tule Lake National Wildlife Refuge, 27 November 1993 (3-1994).

Sketch by Ray Ekstrom

1994) is believed to be the same as one seen at nearby L. Earl, DN, 31 Oct–1 Nov 1993 (in documentation; *NASFN* 48:245). Gyrfalcons have been recorded on the Oregon coast south to Curry County (Schmidt 1989, Gilligan et al. 1994), but all previous California records have been for the interior, including four for the Klamath Basin.

YELLOW RAIL *Coturnicops noveboracensis* (66**). Like most recently recorded Yellow Rails, one at Palo Alto Baylands, SCL, 12 Dec 1993 (SFB, DEQ; 6-1994) was seen during an extreme high tide.

AMERICAN OYSTERCATCHER *Haematopus palliatus* (12). An adult and a juvenile were at Middle Anacapa I., VEN, 4 Sep 1993 (KLG†, MH, KGL†; 36-1994). These birds appeared typical of the west Mexican subspecies *frazari* but were never scored using Jehl's (1985) system (Table 1); see the discussion below under Records Not Accepted, Identification Not Established. Observers are encouraged to use this system as much as possible in describing potential American Oystercatchers.

UPLAND SANDPIPER *Bartramia longicauda* (13). One at Independence, INY, 13 Jun 1993 (AK†; 109-1993) was the fifth to be found in that county; all five have been in spring. Previous accepted records were nearly evenly divided between spring (five records 15–28 May, all but one inland) and fall (seven records 22 Aug–21 Sep, all but one coastal).

LITTLE CURLEW *Numenius minutus* (3). An adult at the Santa Maria R. estuary, SBA/SLO, and the ocean beach up to 2 miles south, *4–20 Aug* 1993 (Figure 6; BHi†; SEF†, MH†, PEL, MM, MSM, MMT†, SBT; 125-1993; color photo in *Am.*

Figure 5. Adult female Zone-tailed Hawk in Laguna Beach, 29 August 1993 (135-1993), one of a record 11 individuals documented in California in 1993.

Photo by Greg Stewart

Table 1 System for Assessing the Intermediacy of Black and American Oystercatchers[a]

Character state	Score
Upper tail coverts	
Black, as in *bachmani*	0
Black, a few white mottlings	1
Nearly equally black and white	2
White, a few black mottlings	3
White, as in *palliatus*	4
Tail	
Black, as in *bachmani*	0
Mainly black, trace of white at base of vanes	1
Basal quarter of rectrices white	2
Basal third of rectrices white	3
Basal half of rectrices white, as in *palliatus*	4
Chest	
Black, with black chest band extending smoothly onto midbelly, as in *bachmani*	0
Black chest band extending onto upper third of belly	1
Black chest band extending onto upper quarter of belly	2
Black chest band bordered by ragged edge on upper breast	3
Black chest band sharply delimited from white of upper chest, as in *palliatus*	4
Belly	
Blackish, as in *bachmani*	0
Blackish, with traces of white on a few feathers	1
Blackish, white area around crissum	2
Three quarters black, one quarter white	3
Nearly equally black and white	4
Three quarters white, one quarter black	5
Entirely white, as in *palliatus*	6
Under tail coverts	
Entirely black, as in *bachmani*	0
Mainly black with slight white mottling	1
Nearly equally black and white	2
Mainly white	3
Entirely white, as in *palliatus*	4
Thighs	
Entirely black, as in *bachmani*	0
Black with grayish underdown, not noticable externally	1
Puffs of grayish down noticeable	2
Mainly white	3
Entirely white, as in *palliatus*	4
Greater secondary coverts (width of white edging in folded wing)	
White lacking, as in *bachmani*	0
Less than 2 mm	1
2–5 mm	2
6–15 mm	3
More than 15 mm	4
Extent of white wing stripe	
Lacking, as in *bachmani*	0
White markings confined to inner half of secondaries	1
White markings extend to outer secondaries but not to primaries	2
White present on some or all of inner five primaries	3
White present on at least one of primaries 6–10	4

Table 1 (*Cont.*)

Underwing coverts	
Entirely black, as in *bachmani*	0
Mainly black, some white mottling	1
Nearly equally black and white	2
Mainly white	3
White, as in *palliatus*	4
Axillars	
Black, as in *bachmani*	0
Mainly black, some white mottling	1
Nearly equally black and white	2
Mainly white	3
White, as in *palliatus*	4

[a]From Jehl (1985, Table 1). Jehl considered birds with total scores (all characters added together) from 0 to 9 to be Black Oystercatchers, from 10 to 29 to be hybrids, and from 30 to 38 to be American Oystercatchers.

Birds 48:159) was considered only possibly the same individual as was seen in agricultural fields upstream in the lower Santa Maria Valley 16 Sep–14 Oct 1984 (Lehman and Dunn 1985, Roberson 1986) and 23–24 Sep 1988 (Patten and Erickson 1994); Lehman (1994) also summarized all these records. The only other well-established New World record of this species is of one collected on St. Lawrence I., Alaska, 7–8 Jun 1989 (Gibson and Kessel 1992).

Figure 6. Adult Little Curlew with a Long-billed Curlew at the Santa Maria River mouth, 10 August 1993 (125-1993).

Photo by Monte M. Taylor

HUDSONIAN GODWIT *Limosa haemastica* (12). A juvenile near Drake's Estero, Pt. Reyes, MRN, 8–9 Aug 1993 (RS†; PP†; 131-1993) was the first for that popular birding county. It just preceded the date span of the seven previous fall records, 9 Aug–3 Oct. Four spring records range from 9 to 22 May.

BAR-TAILED GODWIT *Limosa lapponica* (15). A juvenile at the Mad R. estuary, HUM, 5–6 Sep 1993 (TE†; DF; 202-1993) was possibly the same bird seen in Crescent City, DN, 28 Aug 1993 (*Am. Birds* 48:149; unreviewed by CBRC). Northern California's records of this species now outnumber southern California's 4:1. All of the records are of fall migrants (11 Jul–30 Nov) except for one at Culver City, LA, 11 Feb–2 Mar 1976 (Luther et al. 1979) and one at Crescent City 3–5 Jun 1984 (Dunn 1988).

LITTLE GULL *Larus minutus* (49). Three first-winter birds were all in the interior: near Gustine, MER, 20 Nov 1993 (RJR; 7-1994); Piute Ponds, Edwards AFB, LA, 28 Nov 1993 (JHa†, GSH; 193-1993); and near Oasis Station, north end of the Salton Sea, RIV, 14 Dec 1993 (possibly late November)–8 Jan 1994 (GMcC, MMo, MAP†, HY; 200-1993). Most previous records have been coastal, but the Salton Sea continues to generate sightings. There are now eight records there, including the state's first near Mecca, RIV, 16–21 Nov 1968 (Dunn 1988). The Gustine Little Gull was the first for Merced County.

BLACK-HEADED GULL *Larus ridibundus* (17). A first-winter bird at Arcata, HUM, *24* Jan–7 Feb 1993 (BBA, BEDe, TWL†, JM; 52-1993) was seen later at the Mad R. estuary, HUM, 12 Mar–5 Apr 1993 (Lester, in comments), and an adult at Alviso, SCL, 15 Nov 1993 (SCR; 181-1993) was seen later at Sunnyvale, SCL, 23 Jan–9 Feb 1994 (JL†, MM, JM, BDP, MMR†, SCR; 50-1994). A second-winter bird on the beach at Santa Barbara, SBA, 29 Nov 1993–5 Feb 1994 (SEF†, PEL, GMcC, SBT†; 192-1993) had been present at the same location as a first-year bird 21 Nov–21 Dec 1992 (Heindel and Patten 1996); in addition to behaving like the previous winter's bird, it showed the relatively dull leg color indicative of some second-year birds (Grant 1986). Three in one calendar year is the highest total since four were seen in 1980 and three were seen in 1981 (Binford 1985, Morlan 1985).

THICK-BILLED MURRE *Uria lomvia* (30). Single individuals were off Cannery Row, Monterey, MTY, 19–28 Sep 1993 (JMa†; RC, HG, GH, JL†, DR†, DSS†; 150-1993), 1.8 miles W of Cypress Pt., MTY, 22 Sep 1993 (JLD†; 19-1994), and 3–4 miles off Pt. Bonita, MRN, 24 Oct 1993 (SBT; 213-1993). The last was only the third California record away from Monterey Bay.

PARAKEET AUKLET *Cyclorrhynchus psittacula* (65). There were two record-setting reports in 1993, of one approximately 158 n. miles SW of San Nicolas I., VEN (ca. 31° 03′ N, 121° 12′ W) on 14 Jan 1993 (PP†; 32-1993) and 18 (in groups of 1–3; plus 7 probables) 61–72 n. miles W of Pt. Arguello, SBA, on 25 Jan 1993 (PP†; 33-1993). The first bird was farther south than the previous record of three birds found dead on the beach north of La Jolla, SD, 28 Jan 1937 (Kenyon 1937, Roberson 1993a); the species remains unrecorded in Mexican waters (Howell and Webb 1995). The second record (actually considered as 18 of the 65 total accepted records) involved more individuals than any other; 12 collected on Monterey Bay, MTY, 13 Jan 1908 (Beck 1910, Roberson 1986) constitute the only other report in double digits.

RUDDY GROUND-DOVE *Columbina talpacoti* (59). Five were found at Furnace Creek Ranch, Death Valley NP, INY, in 1993: a female 4–24 Oct 1993 (TH; GMcC, KLG†; 156-1993); a male 10–24 Oct 1993 (MAP, KFC; KLG†; 149-1993); a male (adult?) 24 Oct 1993 (KLG; 166-1993); and two females 17 Nov 1993 (TH; 199-1993). Elsewhere, a singing male was on the Colorado R. 14 miles N of Blythe, RIV,

25–31 May 1993 (RJ; 108-1993), a female was at Deep Springs, INY, 12 Oct 1993 (TH; 189-1993), and a female was along San Juan Cr., Dana Point, ORA, 4–5 Nov 1993 (BED; 183-1993). The last bird is the first to be accepted from Orange County.

GROOVE-BILLED ANI *Crotophaga sulcirostris* (9). One in Goleta, SBA, 13 Apr–8 June 1993 (Figure 7; KL, RM; SEF†, DD†, PEL, GMcC; 85-1993) may have arrived the previous fall during a record influx of four anis into the state (Heindel and Patten 1996). Previous state records have all been from fall (13 Sep–30 Dec).

BROAD-BILLED HUMMINGBIRD *Cynanthus latirostris* (43). An immature male was in Los Angeles, LA, on 3 Jan 1993 (KLG; 75-1993). An influx of this species in fall 1993 resulted in five birds being found along the southern California coast, one in northern California. An immature male was in Goleta, SBA, 6–22 Sep 1993 (SEF†; PEL, GMcC; 159-1993). An adult male at a feeder in Camarillo, VEN, 12 Nov–19 Dec 1993 (JW†, HW; EMcC†; 197-1993) was joined by a female 23 Nov–19 Dec 1993 (JW†; 198-1993). Another male (KLG, MK, CAM; 54A-1994) and female (KLG, MH†, MK, CAM, SBT†; 54B-1994) were at the South Coast Botanic Garden, Rolling Hills Estates, LA, from 2 Dec 1993 and 24 Oct 1993, respectively, through February 1994. An immature male at Fairhaven, HUM, 8–14 Oct 1993 (SH; GSL,

Figure 7. Groove-billed Ani in Goleta, 28 May 1993 (85-1993).

Photo by Don Desjardins

TWL†; 63-1994; photo in *Am. Birds* 48:149.) furnished the northernmost record on the Pacific Coast (Yee et al. 1994).

DUSKY-CAPPED FLYCATCHER *Myiarchus tuberculifer* (30). One at Trinidad, HUM, 9–11 Nov 1993 (GSc, KS; GSL†; 64-1994) represents the northernmost record for this species in California (there is now a record for Oregon—*Oregon Birds* 22:21). Another was at Gazos Creek, SM, 20–21 Nov 1993 (MF; AME, RST; 195-1993). After a banner year in 1992, when a record eight individuals were found in late fall and winter (Heindel and Patten 1996), two Dusky-capped Flycatchers is more typical. This species has occurred in the state on nearly an annual basis since 1980 (missing only 1982 and 1986) after only a single record in the 1960s (first recorded in California on 23 Nov 1968; Suffel 1970, Roberson 1986) and two records during the 1970s (both in the winter of 1975–76; Luther et al. 1979).

GREAT CRESTED FLYCATCHER *Myiarchus crinitus* (38). One was at Gaviota SP, SBA, on 3 Oct 1993 (BHi†; 191-1993). Photos, one of which was published in *Am. Birds* 48:152, clearly show a dark gray breast and the whitish fringe on the innermost tertial tapering toward a point at the tip of the feather, features that rule out the Brown-crested Flycatcher (*M. tyrannulus*). See Heindel and Patten (1996) for a recent discussion of the identification of these two species.

SULPHUR-BELLIED FLYCATCHER *Myiodynastes luteiventris* (11). One was at Baywood Park, SLO, 20 Oct 1993 (VPJ, RAP; 39-1994). Remarkable were two in Marin County within ten days of each other: one at Pt. Reyes 25 Sep 1993 (Figure 8; WSK†, KLs†, JM, DSS†; 169-1993) and one at Bolinas 6–10 Oct 1993 (Figure 9; KH†; GHF, EDG†, MM, JM, BDP, DEQ†, SBT†; 155-1993; photo in *Am. Birds* 48:149).

Differences between the Marin birds included (JM in description) the Pt. Reyes bird's having more pink on the bill, a solidly rufous tail, white spotting on the inner webs of the coverts forming conspicuous wingbars, and no noticeable yellow on the crown, and the Bolinas bird's having more dark on the bill, coverts narrowly tipped with white forming inconspicuous wingbars, and conspicuous yellow on the crown. These characteristics may indicate that the Bolinas bird was an adult and the Pt. Reyes bird was an immature (Pyle, in comments).

Perhaps generally underestimated is the difficulty in separating this species from the similar Streaked Flycatcher (*M. maculatus*), which has a mostly whitish chin, thin malar stripes, and a pale yellowish supercilium and moustachial stripe, in contrast to the more extensive blacker malar stripe and chin and whitish supercilium and moustachial stripe of the Sulphur-bellied Flycatcher (Howell and Webb 1995). Like the Sulphur-bellied Flycatcher, the Streaked Flycatcher is migratory, but its breeding distribution is restricted to eastern Mexico, whereas the Sulphur-bellied extends into southeastern Arizona. Although much less likely to occur in California, the Streaked Flycatcher is a possible vagrant and should be eliminated when reports of the Sulphur-bellied Flycatcher are evaluated.

THICK-BILLED KINGBIRD *Tyrannus crassirostris* (12). A bird first noted in Pomona, LA, 3–8 Mar 1993 returned on 19 Oct 1993 and stayed until at least 4 Mar 1994 (CMB§; MAP; 57-1994). It made only the second record for Los Angeles County. Another individual was near Rickey L., about 7 miles E of Chula Vista, SD, on 3 Nov 1993 (ERL; 40-1994). All but one record of this species have come from southern California, the exception being a bird in San Francisco, SF, 27 Oct–19 Dec 1974 (Luther et al. 1979).

SCISSOR-TAILED FLYCATCHER *Tyrannus forficata* (88). One at Solana Beach, SD, 27–28 Mar 1993 (BM; PAG; 112-1993) was judged to be the same as one seen nearby on 4 Dec 1992 (Heindel and Patten 1996). An adult was on San Nicolas I., VEN, on 9 Jun 1993 (GM; 145-1993), and individuals were photographed near

Figure 8. Sulphur-bellied Flycatcher (apparently an immature) on Pt. Reyes, 25 September 1993 (169-1993), the first record for northern California.

Photo by William S. Kossack

Figure 9. Sulphur-bellied Flycatcher (possibly an adult) in Bolinas, 10 October 1993 (155-1993).

Photo by David E. Quady

Norco, RIV, 11–30 Mar 1993 (HEC; GMcC, MAP†; 59-1993), at Panamint Springs, INY, 30 May 1993 (LST†, SBT; GMcC; 92-1993), at Owens L., INY, 8 Jun 1993 (JH†, TH; 113-1993), and near Nicasio, MRN, 25 Sep–24 Oct 1993 (JM; JLD, EDG†, MM, BDP, SBT†; 154-1993; photo in *Am. Birds* 48:150).

DUSKY WARBLER *Phylloscopus fuscatus* (4). One was in Goleta, SBA, 22–23 Oct 1993 (SEF; PEL, BSc; 160-1993). The discoverer was familiar with the distinctive call, a flat note similar to that of a junco (*Junco* sp.) or Lincoln's Sparrow (*Melospiza lincolnii*), often given loudly and repeatedly by the Dusky Warbler. The description and field sketch were quite detailed, and the record passed unanimously on the first round. This bird was on private land with limited access, so rather few observers were able to see it.

The Dusky Warbler represents the only accepted species of *Phylloscopus* in California, although an Arctic Warbler (*P. borealis*) banded and photographed in the hand at the Big Sur R. mouth, MTY, in fall 1995 is currently being reviewed by the Committee. There are now four records for the state (with a fifth from fall 1995 currently under review) and two records for Baja California (Erickson et al. in press), a remarkable total considering the North American status of this species (five records for Alaska are the only records outside California or Baja California).

Several species of *Phylloscopus* breed in eastern Asia, are long-distance migrants, and are prone to vagrancy. Therefore, while some species are much more likely to occur than others, members of this genus found in California should not be assumed to be a "likely" species (i.e., the Arctic or Dusky warblers) on the basis of range or previous records. In fact, as the Europeans have learned, each individual must be documented meticulously in order to rule out conclusively the many similar-looking contenders that may stray well out of range. Unlike the Dusky Warbler, most *Phylloscopus* are distinctly greenish above and show at least one wingbar. Highly migratory species that breed in Siberia, lack wingbars, and may approach the appearance of the Dusky Warbler include Radde's Warbler (*P. schwarzi*), Chiffchaff (*P. collybita*), and Willow Warbler (*P. trochilus*). Another similar-looking species, the Yellow-streaked Warbler (*P. armandii*), breeds in northeastern and central China, winters in Laos, Burma, and Thailand, and thus seems unlikely to occur as a vagrant in North America, although it has been considered a possible vagrant to the western Palearctic (Parmenter and Byers 1991). Of the more likely candidates, Radde's resembles the Dusky most closely (e.g., see Lewington et al. 1991, Parmenter and Byers 1991) and offers the most difficulty in identification.

Radde's Warbler, like the Dusky, breeds in Siberia (although not as far east) and migrates long distances to southern China and southeast Asia; both species occur as vagrants to western Europe. Identification criteria for these two species, as outlined by Lewington et al. (1991), Jonsson (1993), Leader (1995), and others, include leg color (flesh colored in the Dusky, pale yellowish or grayish pink in Radde's), bill shape (relatively short and thick in Radde's, thinner in the Dusky); supercilium coloration (whiter behind the eye than in front in Radde's, evenly white or whiter in front of the eye than behind it in the Dusky) and shape (tapered to a point in front of the eye in the Dusky, more even in thickness in front of the eye in Radde's), and call (a short *chek* in the Dusky, a lower pitched *tuk* or *tuk-tch* in Radde's). A description and sketch of the Goleta bird indicated that the lores were dark and the supraorbital region was whitish and tapered anteriorly. In addition, Finnegan recognized the call almost immediately, from two recent trips to China during which she had seen both the Dusky (numerous) and Radde's warblers.

WOOD THRUSH *Hylocichla mustelina* (11). A singing bird in Wilmington, LA, 18 Jun 1993 (MSM; 95-1993) represents the third accepted spring record for the state and the first for southern California. This species remains remarkably rare in California.

*RED-THROATED PIPIT *Anthus cervinus* (104). Three on SE Farallon I., SF, 5 Oct 1991 (PP;156-1991) occurred during a record-breaking year for this species (Patten et al. 1995).

WHITE-EYED VIREO *Vireo griseus* (30). Following a record ten birds reported in spring and summer 1992, during an unprecedented year for southeastern vagrants, four White-eyed Vireos during the same period in 1993 is still well above average [0.6 birds per year from April to July over the previous ten years; see Terrill et al. (1992), Heindel and Patten (1996), Patten and Marantz (in press)]. Singing males were at Huntington Beach, ORA, 8 May 1993 (PS; BED, RAE, DRW; 82-1993), Indian Wells Canyon, KER, 23 May 1993 (HB§, PB; 93-1993), Huntington Beach, ORA, 31 May 1993 (BED; 94-1993), and Goleta, SBA, 6 June 1993 (PEL; SEF 87-1993).

YELLOW-THROATED VIREO *Vireo flavifrons* (53). One was at Pt. Reyes, MRN, 17–19 May 1993 (RS; JM; 90-1993), and singing males were at Huntington Beach, ORA, 23 May 1993 (JEP; 136-1993) and Goleta, SBA, 1 Jun 1993 (PEL; 86-1993).

PHILADELPHIA VIREO *Vireo philadelphicus* (95). An unprecedented 10 individuals were recorded in September and October 1993 (the vast majority of California records are from this two-month period). Single individuals were at the following coastal locations: Big Sur R. mouth, MTY, 18–21 Sep 1993 (Figure 10; NL; JND† 151-1993); Pescadero, SM, 30 Sep–17 Oct 1993 (RST; NL, JM; 174-1993); SE Farallon I., SF, 6 Oct 1993 (PP†; 204-1993); Bolinas, MRN, 7–16 Oct 1993 (KH; JM, SBT; 179-1993); Carmel R. mouth, MTY, 7–14 Oct 1993 (DEG; RC, DR; 164-1993); Big Sur R. mouth, MTY, 9 Oct 1993 (CHo; 201-1993); Huntington Beach, ORA, 11–14 Oct 1993 (SMl; BED, RAE; 172-1993); Los Osos, SLO, 10–*15* Oct 1993 (JSR; 41-1994); and SE Farallon I., SF, 9 Nov 1993 (PP†; 205-1993). One was in the eastern desert at Stovepipe Wells, Death Valley NP, INY, on 14 Oct 1993 (JH, TH†; 187-1993).

Deletion of this species from the Review List was most recently discussed at the 1996 annual meeting. However, owing to a history of identification problems, the Committee felt that the species should be retained.

YELLOW-GREEN VIREO *Vireo flavoviridis* (36). One was at Bolinas, MRN, 16–22 Oct 1993 (JK, KH; GHF, MMcC†, JM; 177-1993), one was on SE Farallon I., SF, 26 Oct 1993 (PP; 206-1993), and one was at Pt. Reyes, MRN, 28 Oct 1993 (RS; 185-1993).

The Yellow-green and Red-eyed (*V. olivaceus*) vireos vary a fair amount individually and can resemble each other more closely than may be widely appreciated. Red-eyed Vireos can show relatively indistinct dark borders to the supercilium, bright yellow on the undertail coverts, sides, and flanks, and their upperparts can be virtually identical in color to those of the Yellow-green Vireo. Diagnostic for the Yellow-green is the extension of yellow up past the shoulder onto the sides of the head behind the auriculars and the edgings to the remiges and rectrices, which are yellow rather than olive or greenish-gray in the Red-eyed (Terrill and Terrill 1981).

BLUE-WINGED WARBLER *Vermivora pinus* (18). This species remains one of the rarest of eastern wood warblers in California. However, three individuals were found each year in 1992 and 1993. Records in 1993 are of a wintering bird at Ferndale, HUM, 2 Jan–7 Mar 1993 (Figure 11; DF; RAE, SWH, SMcA†, JM, DR†, DSS; 27-1993), and two fall vagrants: 14 Sep 1993 at the Big Sur R. mouth, MTY (JND†; RC, DR; 152-1993), and 27–28 Sep 1993 at the Carmel R. mouth, MTY (RS; SFB, DR; 153-1993). Although until recently this species has been generally more numerous in spring (Heindel and Patten 1996), records are now evenly divided between spring and fall. Fall records span a relatively narrow period (13 Sep–2 Oct).

This species and the Golden-winged Warbler (*V. chrysoptera*) are closely related. Although there were only two California records of each before 1970, there are now

Figure 10. Philadelphia Vireo at the Big Sur River mouth, 21 September 1993 (151-1993). A record ten individuals were documented in California in 1993.

Photo by Jeff N. Davis

Figure 11. Blue-winged Warbler in Ferndale, 23 January 1993 (27-1993), first winter record for California.

Photo by Sean McAlister

Figure 12. Rustic Bunting near Cantil, 9 November 1993 (162-1993), southernmost record in the New World.

Photo by Matthew T. Heindel

nearly 50 records of the Golden-winged compared to 18 of the Blue-winged. Average annual numbers of the Blue-winged have increased in the late 1980s and early 1990s and now approach those of the Golden-winged. This increase parallels evidence that Blue-winged Warbler populations are rapidly increasing and expanding (e.g., McCracken 1994), replacing the Golden-winged Warbler in some areas.

YELLOW-THROATED WARBLER *Dendroica dominica* (73). A singing male was along Gazos Creek, SM, 19 May 1993 (RST; 97-1993), and a second-spring bird was at Torrance, LA, 6 June 1993 (KGL†; 116-1993). The single 1993 fall record was from Santa Barbara, SBA, on 24 Oct 1993 (GG, RG; 1990-1993).

GRACE'S WARBLER *Dendroica graciae* (29). One at Pismo SB, SLO, 3–6 Oct 1993 (KR; 77-1994) represents the northernmost record of this species on the coast.

PINE WARBLER *Dendroica pinus* (50). Two occurred on the same date, 24 Oct 1993: one at the Big Sur R. mouth, MTY (REM, RFT; RC, DR; 165-1993), and one at Pt. Loma, SD (GMcC; 157-1993). This species is much rarer in northern California than in southern; this represents the first record for Monterey County. The Pt. Loma bird was believed by some observers to have been the same as an individual that wintered at the same location 6 Jan–12 Apr 1992 and a bird seen there 25 Oct–10 Nov 1992 (Heindel and Patten 1996). However, the bird was accepted as a new individual, as a majority of Committee members were swayed by the lack of observations after early November 1992 and the fact that the bird under discussion was seen only on 24 Oct 1993. In addition, one member raised the issue of difficulty in ageing males at this time of year and believed that the description fit an adult or an immature male equally well.

WORM-EATING WARBLER *Helmintheros vermivorus* (70). One was at L. Palmdale, LA, 21 Aug 1993 (KLG, JA; 128-1993), and another was at Carpinteria, SBA, 16 Aug 1993 (BHn; 129-1993).

*KENTUCKY WARBLER *Oporornis formosus* (105). After a record-breaking 40 Kentucky Warblers were recorded in the state in 1992 (Terrill et al. 1992, Heindel and Patten 1996, Patten and Marantz in press), seven individuals in 1993 was closer to the average. In contrast to spring/summer 1992, when 10 times the mean number of Kentucky Warblers occurred, there were only two spring/summer records in 1993. This rapid return to normal supports the hypothesis that the 1992 invasion of this and other southeastern vagrants was probably due to a persistent unusual weather pattern over the Gulf of Mexico in spring 1992 (Terrill et al. 1992).

The following 1993 Kentucky Warbler records were accepted: Green Valley, Encinitas, SD, 30 Jun–2 Jul 1993 (BED; TC, GMcC; 147-1993); Wyman Canyon, INY, 16–18 Jul 1993 (TH, JH;148-1993); Goleta, SBA, 12 Sep 1993 (DPH; SEF, PEL; 161-1993); SE Farallon I., SF, 13 Sep 1993 (JK; 207-1993); Pt. Loma, SD, 21 Sept 1993 (DWA; 42-1994); Galileo Hill Park, KER, 10 Oct 1993 (HB, PB; 173-1993); and Arcadia, LA, 18–19 Dec 1993 (HBo, BC, CHa; JF, KGL†; 79-1994).

CONNECTICUT WARBLER *Oporornis agilis* (72). All four records were for fall: SE Farallon I., SF, where the majority of California's Connecticut Warblers have occurred, 15 Sep 1993 (JK†; 208-1993) and 4–6 Oct 1993 (PP†; 209-1993); Carmel R. mouth, MTY, 27 Sep 1993 (JCS; RFT; 163-1993); and Big Sur R. mouth, MTY, 2 Oct 1993 (CHo†, JND; 171-1993).

MOURNING WARBLER *Oporornis philadelphia* (87). Three out of four 1993 birds were on SE Farallon I., SF, where over half of the state's records have been: 1 Oct 1993 (RAE, PP†; 210-1993), 4–5 Oct 1993 (PP†; 211-1993), and 6–7 Oct 1993 (PP†; 212-1993). The remaining record was from nearby Rodeo Lagoon, MRN, 2 Oct 1993 (JM; 180-1993).

SCARLET TANAGER *Piranga olivacea* (86). An immature male was at Granada Hills, LA, 17 Oct 1993 (TEW; 44-1994); another, probably an immature female, was near Imperial Beach, SD, 21 Oct 1993 (DWA; TC, GMcC; 158-1993); and a third, initially identified as a male, but thought to have been a female when the Committee viewed the videotape, was at Pt. Reyes, MRN, 23 Oct 1993 (JM; EDG†, LL‡; 178-1993).

Scarlet Tanagers have occurred annually since 1967. Three records is about average for a given year. This species occurs about three times as frequently in the fall as in spring/summer.

PAINTED BUNTING *Passerina ciris* (43). One was at Huntington Beach, ORA, 18 Sep 1993 (SM; BED; 184-1993), and a first-year bird was at Furnace Creek Ranch, Death Valley NP, INY, 11 Sept 1993 (MAP†; 134-1993).

CASSIN'S SPARROW *Aimophila cassinii* (36). Up to three (contra *Am. Birds* 47:455) singing males were in the Lanfair Valley, SBE, 8–30 May 1993 (REW§; GMcC, MAP, SBT†; #54313 SBCM; 77-1993). A first fall record for the interior was one at Death Valley Junction, INY, 14–16 Aug 1993 (REW; JH, TH; 188-1993).

LE CONTE'S SPARROW *Ammodramus leconteii* (25). One at Upper Newport Bay, ORA, 14 Dec 1993–11 Jan 1994 (JEP, JSB, KAC; MTH†, CAM, GMcC; 9-1994) was the third to have wintered in the state.

RUSTIC BUNTING *Emberiza rustica* (3). The third for California and the first for southern California and the interior was near Cantil, KER, 7–10 Nov 1993 (Figure 12; MTH†; KFC, MOC, GMcC, MAP; 162-1993). This record is the southernmost for North America.

This bird, photographed and described in detail, was probably a first-year male; however, Svensson (1992) cautioned against ageing and sexing this species in autumn. The Rustic Bunting is a regular straggler to western Alaska and is accidental in British Columbia (two records), Washington (one record), and Oregon (one record). In addition, one or two Rustic Buntings wintered at Hoopa, HUM, in 1995–96 (under CBRC review).

SNOW BUNTING *Plectrophenax nivalis* (55). One was at SE Farallon I., SF, 22 Oct 1991 (SA‡; 10-1992), one was at Crescent City harbor, DN, 27 Dec 1993–16 Jan 1994 (SEF†, GSL†; 65-1994), and one was in the interior at Sierra Valley, PLU, 15 Jan 1993 (LJ;167-1993).

RECORDS NOT ACCEPTED, identification not established

Note that several of the seabird records discussed below may have been from beyond the CBRC's 200-nautical-mile review area. All of these records received full consideration, however; none gained Committee acceptance with respect to identification.

YELLOW-BILLED LOON *Gavia adamsii*. One was reported at Rodeo Beach, Golden Gate National Recreation Area, MRN, 24 Feb 1993 (66-1993; *Am. Birds* 47:296). An increase in the number of reports of this species across the continent suggests an increased understanding of loon identification, but in California Yellow-billed Loon reports have received a rather low acceptance rate of approximately 58%.

SHORT-TAILED ALBATROSS *Diomedea albatrus*. An adult was reported approximately 212 n. miles SW of San Nicolas I., VEN (ca. 32° 02′ N, 123° 57′ W), on 4 Oct 1992 (22-1994), and an immature was reported approximately 47 n. miles NW of Pt. Arguello, SBA (ca. 34° 45′ N, 121° 33′ W), on 9 Oct 1992 (23-1994). There remain only four accepted records of this species in California this century.

RECORDS NOT ACCEPTED, identification not established, Cont.

DARK-RUMPED PETREL *Pterodroma phaeopygia*. One reported near 31° 59' N, 124° 01' W on 8 Apr 1993 (24-1994) was probably just over 200 n. miles SW of San Miguel I., SBA. Pyle et al. (1993) recently reported two observations of this species at similar distances off the coasts of Oregon and California, but one reported SW of Pt. Reyes, MRN, 3 May 1992 (under review) and one photographed off Monterey Co. 26 June 1994 (to be published as accepted in the next Committee report) are the first reports within "California waters."

GREATER SHEARWATER *Puffinus gravis*. One reported by five participants on an organized boat trip on Monterey Bay, MTY, 24 Feb 1979 (17-1979) was previously accepted by the Committee (Luther et al. 1983) and thus has been widely treated in the ornithological literature as the sole record of this species in the North Pacific (e.g., AOU 1983, Harrison 1983, Marchant and Higgins 1990). A few individuals had always questioned this record, and the number of doubters gradually grew until reaching critical mass early this decade. The Committee's decision in 1993 to reevaluate the record on the basis of "new and substantial information," however, was so contentious that this former requirement for reconsideration was dropped a year later. Now, any record can be reconsidered if a majority votes to do so at an annual meeting. To overturn a formerly accepted record, a majority of the Committee must vote against the record. This record went through three full circulations for all viewpoints to be considered carefully and received the necessary majority vote to overturn on each round.

The record still has its supporters (there were four accept votes in the final circulation) and thus continues to be controversial. Two highly qualified observers, long-serving members of this Committee and current members of the ABA Checklist Committee, were the primary observers involved and neither has ever wavered in his support of the record. One has since seen the most similar-looking gadfly petrel, the Juan Fernandez Petrel (*Pterodroma externa*), and insists the bird was not that species. Obviously, many believe the descriptions best fit the Greater Shearwater.

Members voting against the record emphasized the uniqueness of the sighting: not only was this the first record for the North Pacific, but it was also most unexpected in the Northern Hemisphere in winter. Accordingly, these members insisted on unassailable documentation, no matter the observers. For them, it was not enough to ask what the bird could have been if not a Greater Shearwater. The bird was well seen, but note these shortcomings of the documentation: the obvious scaled pattern of the upperparts of Greater Shearwater was not noted by anyone— indeed, one observer described a *Pterodroma*-like "M" pattern across the mantle; a dark belly patch (although often difficult to see) was not seen by anyone, and the bird was consistently described as immaculate white below; no dark markings were seen on the underwings; the high arching flight of the bird was so distinctive (compared to other shearwaters seen that day) that the bird was considered to have been a *Pterodroma* until the boat was back in port; no whitish collar was seen, although some Greater Shearwaters lack this mark; forehead and bare-part colors were poorly noted; the bird was not consistently described as large as expected; the sighting was made at a time when only one *Pterodroma*, the Mottled Petrel (*P. inexpectata*), had been recorded in California (and never alive at sea) and almost none of the observers had seen a gadfly petrel or fully understood the potential for members of the genus to reach California; and although the Greater Shearwater was considered during the observation, the final identification was not made until later, when critical marks could not be rechecked.

Ironically, near the end of this record's second round through the Committee, a Greater Shearwater was much better documented on Monterey Bay 1–2 Oct 1994 (*NASFN* 49:95; CBRC unpubl. data). None of those global reference works will have

RECORDS NOT ACCEPTED, identification not established, Cont.

to be reprinted after all! Details of the CBRC review of the 1994 record will appear in the next Committee report.

WEDGE-TAILED SHEARWATER *Puffinus pacificus*. Organized boat trips generated reports of one ca. 7 n. miles W of the Pajaro R. mouth, MTY/SCZ, 24 Oct 1992 (3-1993; photo in *Am. Birds* 47:144) and two approximately 40 n. miles SW of Pt. Arguello, SBA, on 17 Apr 1993: one dark morph (120-1993) and one light morph (121-1993).

The 1992 Monterey report is especially interesting. It received minority support, based only on the published photograph, on its first circulation. All support collapsed in subsequent rounds as additional photographs submitted appear to depict only a Sooty Shearwater (*P. griseus*). Rumors continue to circulate that two birds were actually involved and that important additional photographs exist. The Committee encourages the submission of any additional documentation and will certainly reconsider the record as needed.

Despite its distinctive shape—small head, broad-based wings, and long tail—and plumage (Harrison 1983, 1987; Stallcup et al. 1988), this species has been overreported in California. One light morph on Monterey Bay, MTY, 31 Aug 1986 (Stallcup et al. 1988, Bevier 1990) and one dark morph at the north end of the Salton Sea, RIV, 31 Jul 1988 (McCaskie and Webster 1990, Pyle and McCaskie 1992) remain the only accepted records, yet eight reports have now failed to gain Committee approval.

MANX SHEARWATER *Puffinus puffinus*. A bird seen on Monterey Bay, MTY, in early September 1985 (168-1994) and one reported 8–10 miles W of Moss Landing, MTY, on 24 Oct 1993 (67-1994; *Am. Birds* 48:147) showed several characters typical of this species but were judged insufficiently documented. See Records Accepted for a discussion of the first accepted records of this species in California.

BAND-RUMPED STORM-PETREL *Oceanodroma castro*. Eight were reported by seabird researchers in 1993: four approximately 212–225 n. miles SW of San Miguel I., SBA, 20 Aug 1993 (26-1994); two approximately 140–145 n. miles SSW of San Nicolas I., VEN, 10 Oct 1993 (27-1994); and two somewhere between 175 and 245 n. miles SW of San Nicolas I., VEN, 13 Oct 1993 (28-1994).

The 1989 records reported by Small (1994) were not accepted by the Committee (Heindel and Garrett 1995); Heindel and Patten (1996) discussed additional recent records not accepted by the Committee. The only record ever accepted for California (one off San Diego 12 Sep 1970; Luther et al. 1983, McCaskie 1990) is currently being reconsidered by the Committee. There remains no specimen or photographic record of this warm-water species in the northeastern Pacific.

RED-FOOTED BOOBY *Sula sula*. One was reported at La Jolla, SD, 13 Aug 1993 (31-1994; *Am. Birds* 48:151).

REDDISH EGRET *Egretta rufescens*. One reported in "mottled" plumage at Seal Beach NWR, ORA, 2 Jan 1993 (123-1993) was described as having "whitish immature feathers remaining." Birds in northwestern Mexico (*E. r. dickeyi*, presumably responsible for all California records) are dark in all plumages, so the description was not well received. An immature Reddish Egret was known to be present in the area at the time (see Corrigenda below), however, so some members felt this was merely a poor description of a known bird.

GARGANEY *Anas querquedula*. One reported in San Rafael, MRN, 16 Jan 1993 (54-1993; *Am. Birds* 47:297) was seen by many and described by three observers. Most Committee members agreed that this was likely a Garganey but that the

RECORDS NOT ACCEPTED, identification not established, Cont.

documentation was insufficient to confirm a record of so rare a species outside of the expected migratory periods. Incomplete descriptions of the wing pattern were of particular concern.

ZONE-TAILED HAWK *Buteo albonotatus*. Single individuals were reported at Butterbredt Spring, KRN, 8 May 1993 (17-1994) and Fort Piute, SBE, 16 May 1993 (107-1993; *Am. Birds* 47:451).

AMERICAN OYSTERCATCHER *Haematopus palliatus*. One on Pt. Loma, SD, 11 Mar–7 May 1992 (Figure 13; 120-1992; *Am. Birds* 46:480) was considered an American × Black (*H. bachmani*) Oystercatcher hybrid, whereas the identity of 12+ reported at Sausalito, MRN, 18 Feb 1993 (89-1993) was not established.

The hybrid determination of the Pt. Loma bird was based on the character-scoring system devised by Jehl (1985; reproduced in Table 1). Committee members Patten and McCaskie each evaluated the bird, generating total scores of 22–27 and 24–31, respectively. To complicate matters, a specimen from Santa Barbara I., SBA (2 Jun 1863, MVZ# 4489), scored at 26–29 by Jehl and two others, was *accepted* by the Committee, largely on the recommendation of Jehl himself (Roberson 1993a). The scores for some of the other accepted records likely also fall below 30, the threshold specified by Jehl for an unhybridized American Oystercater. Clearly the Committee has an unresolved issue on its hands; it is inappropriate that similar-looking birds be found among accepted and not accepted records. For the sake of consistency, a reanalysis of all records is planned, with one goal to determine how best to evaluate intermediate birds.

Figure 13. Oystercatcher on Pt. Loma, 28 March 1992, judged to be a hybrid American × Black (120-1992). Note the dark uppertail coverts.

Photo by Michael A. Patten

RECORDS NOT ACCEPTED, identification not established, Cont.

COMMON GREENSHANK *Tringa nebularia*. A bird at the Chico oxidation ponds, BUT, 1 Dec 1993 (4-1995) was described as like a Greater Yellowlegs (*T. melanoleuca*) but with "yellow-greenish legs" and "a white wedge 1/2 to 2/3 of the way up its back." The description was interesting, but the shape of the bird (especially the bill) did not match this species, and this potential first state record received no support.

BAR-TAILED GODWIT *Limosa lapponica*. One was reported at Alameda, ALA, 8 Mar 1993 (88-1993).

RED-NECKED STINT *Calidris ruficollis*. One reported at the San Diego R. estuary, SD, 12 Aug 1993 (37-1994) was rather superficially described (for a "peep") by the single observer. The Committee has struggled over well-photographed birds (as have other committees, e.g., Round 1996), so records of all but the most obvious alternate-plumaged stints require meticulous documentation.

LITTLE STINT *Calidris minuta*. A juvenile was reported near Stratford, KIN, 28 Aug 1993 (170-1993). As with the previous record, this single-observer description lacked the detail needed for adequate documentation. There are now as many rejected records of this species in California as accepted ones, at five apiece.

BRIDLED/GRAY-BACKED TERN *Sterna anaethetus/lunata*. An adult tern seen for several minutes near the massive tern colony at Bolsa Chica, ORA, 12 Jun 1993 (144-1993) was documented by all three observers. It was described as having a black cap, whitish nape, gray back, and dark wings and tail except for the outermost rectrix, which was "thinly edged with white near the tip." Other relevant features noted included a white forehead patch that narrowed on either side and extended back to end in a point above and behind each eye and a narrow black eyeline that boldly separated the white supercilium from the whitish face. The underparts were entirely white.

The bird was submitted as a Bridled or Gray-backed tern, two species of the tropical Pacific still unrecorded in California. Committee members were allowed to vote for either species, and the response was quite mixed: one voted to accept as the Bridled, one voted to accept as the Gray-backed, four felt the bird was "almost certainly" one or the other, and four were unwilling to endorse the record in any specific way, some believing the possibility of confusion with the Sooty Tern (*S. fuscata*) was too great. After the one-day reports of a Sooty/Bridled Tern 5 Aug 1990 (Heindel and Garrett 1995), this record, and a Sooty Tern 30 July 1994 (*NASFN* 48:989; CBRC unpubl. data)—all at Bolsa Chica—frustrated birders were gladdened by the appearance of a long-staying Sooty Tern there in 1995 (*NASFN* 49:980; under CBRC review).

RUDDY GROUND-DOVE *Columbina talpacoti*. One reported at Hidden Valley Wildlife Area, Norco, RIV, 29 May 1993 (110-1993) would have been the first spring record for the coastal slope of California.

ALDER FLYCATCHER *Empidonax alnorum*. Two birds together were reported from Butterbredt Spring, KER, 28 May 1993 (111-1993). At this time, there are only two accepted records for this species in California. The first (185-1991) was of a singing bird tape-recorded at the South Fork of the Kern R., KER, on 11 Jul 1991. Sonograms were analyzed by experts on the species, and the identification was confirmed (Patten et al. 1995). The second record involved a bird repeatedly heard calling and singing, described in great detail, also at Butterbredt Spring on 30 May 1992 (149-1992; Heindel and Patten 1996).

The identification of Alder and Willow (*E. traillii*) flycatchers is difficult. Willow Flycatchers can give a trisyllabic song (Kaufman 1990), and the identification of these

RECORDS NOT ACCEPTED, identification not established, Cont.

birds rested primarily on a trisyllabic song described as *fee-bee-o*. Short of a tape recording, critical to adequate documentation of this species is a detailed description of the quality of the vocalizations (duration, pitch, etc.). Several members noted that *fee-bee-o* is not an appropriate description of an Alder Flycatcher song and that the Willow Flycatcher can sound like this [*fitz-bew-wick* to one Committee member, or *fritz-be-yew* as described by Kaufman (1990)]. It was also noted that vocalizations of Willow Flycatchers are more variable than is widely known. Finally, there was concern that neither the *wee-bee* nor the sharp *pip* call, probably diagnostic for distinguishing the Alder from the Willow Flycatcher, was heard.

Descriptions of the birds as having more greenish olive-green backs, as opposed to the more brownish olive-green backs of the nearby Willows, is appropriate for the Alder Flycatcher, which tends to be greener on the upperparts in fresh plumage (Kaufman 1990), but these species may not be consistently distinguishable, even in the hand, by plumage (Pyle et al. 1987, Kaufman 1990).

As more information concerning identification criteria of these two species is collected, we may find that the Alder Flycatcher is more regular in the state than is currently known. In particular, if the sharp *pip* note of Alder (relative to the liquid *whip* note of Willow Flycatchers) turns out to be diagnostic, records of accepted birds may increase (see also Heindel and Patten 1996).

YELLOW-BELLIED FLYCATCHER (*Empidonax flaviventris*). A calling bird was reported from Gardena, LA, 16 Sep 1993 (38-1994) by a single observer. Although much of the description was correct for this species, the Committee remains conservative on eastern *Empidonax* flycatchers that are not photographed or tape-recorded because of plumage variability and the difficulty involved in identification of extralimital members of this genus.

DUSKY-CAPPED FLYCATCHER *Myiarchus tuberculifer*. One reported from Montana de Oro SP, SLO, on 7 Nov 1992 (19-1993) was on the early side; although there are a number of November records, most are for late November, and there is only one accepted record earlier than this report (4–6 Nov 1992; Patten et al. 1995). The bird was silent, and several key characters were not noted. In particular, the rectrices were not seen from below, and the inner webs were evidently not seen from above. The closed tail was described as being uniform brown without rusty on the upperside. Most if not all previous California Dusky-capped Flycatchers have shown thin rufous edgings on the outer webs of the rectrices. A number of Committee members also believed that the pattern on the secondaries, another key point, was not adequately described (the Dusky-capped is the only *Myiarchus* with rufous edgings to the secondaries). Finally, several members pointed out that a bright freshly molted Ash-throated Flycatcher (*M. cinerascens*) was not eliminated by the description, and that California observers seldom see this plumage (by the time the birds return to the state in spring, they are somewhat paler because of feather wear). Members that believed the record adequately documented a Dusky-capped Flycatcher were impressed by the description of the size as not much larger than a Black Phoebe (*Sayornis nigricans*) but smaller than an Ash-throated Flycatcher and by the coloration of the underparts, including a bright yellow belly brighter than an Ash-throated's, a gray breast lighter than a Great Crested Flycatcher's, and a throat darker than an Ash-throated Flycatcher's.

VEERY *Catharus fuscescens*. A bird thought to be this species was seen briefly at Butterbredt Spring, KRN, 28 May 1993 (114-1993). Although the description of the bird superficially fit the Veery, the description was not detailed enough to confirm this extremely rare (in California) species, which represents a notoriously difficult identification problem (only 8 of 20 individuals submitted have been accepted).

RECORDS NOT ACCEPTED, identification not established, Cont.

COMMON GRACKLE *Quiscalus quiscula*. A male was reported from Modoc NWR, MOD, 22 Aug–7 Sept 1993, and a female was reported from the same location on 22 Aug 1993 (130-1993). The Committee felt that the descriptions better fit male (immature) and female Great-tailed Grackles (*Q. mexicanus*). In particular, the female was described as having a light brown breast that gradually blended with the darker body color, a description incorrect for the Common Grackle but appropriate for the Great-tailed. The male was evidently all glossy iridescent black and lacked the two-toned appearance of a male Common Grackle created by the bronze tones on the back, wings, and underparts. Another report from the same location (31 May 1986; 86-1994) lacked detail and did not eliminate the Great-tailed Grackle.

SNOW BUNTING *Plectrophenax nivalis*. A bird reported from Baker, SBE, on 10 April 1993 (117-1993) would have been very far south on a late date. Therefore, the majority of the Committee felt that the description should have been more detailed. In addition, the bird was described as being in winter plumage. Several members felt that the bird should have been in transitional or breeding plumage by this date.

A bird seen in November 1983 at Cape Mendocino, HUM (208-1992), was recalled 9 years later. The Committee felt that the report did indeed pertain to a Snow Bunting but that the documentation was insufficient to substantiate it.

RECORDS NOT ACCEPTED, natural occurrence questionable

COMMON CHAFFINCH *Fringilla coelebs*. One was well documented at a feeder in San Jose, SCL, 9–11 Oct 1993 (MM, MMR†; 168-1993). The Committee unanimously considered this bird an escape, although there was considerable disagreement about whether the bird represented one of the migratory or sedentary races. This species has been recorded seven times in the maritime provinces, is currently on the Canadian list (Kaufman 1994), and has been accepted by the ABA Checklist Committee (Dunn and Garrett in comments). However, all Committee members felt that the likelihood of a vagrant chaffinch reaching California is extremely remote.

CORRIGENDA TO THE EIGHTEENTH COMMITTEE REPORT (Heindel and Patten 1996)

Under Records Accepted of Yellow-billed Loons, p. 3: the bird on San Francisco Bay was actually in Alameda County and was present from 20 Dec 1992 to 14 Jan 1993 (*Am. Birds* 47:296, 945). Under Records Accepted of Reddish Egrets, pp. 5–6: the adult at Anaheim Bay (Seal Beach NWR), ORA, 12–14 Apr 1992 remained until 9 May 1992 (*Am. Birds* 46:479), and the immature at Bolsa Chica, ORA, 18 Oct 1992–3 Jan 1993 actually began to commute between Bolsa Chica and Seal Beach NWR and remained to 20 Mar 1993 (Hamilton and Willick in press). Under Records Accepted of Zone-tailed Hawks, p. 7: the L. Murray/Santee bird (records 78-1993 and 79-1993) was judged to be a returnee, but not of record 107-1991/180-1992, which was at L. San Marcos, SD. Either record 34A-1992 or 34B-1992, in Records Accepted above, should be considered the initial visit to Santee.

CORRIGENDUM TO THE FOURTEENTH COMMITTEE REPORT (Roberson 1993a)

Under Populations Accepted, pp. 138–139, it was suggested that Sonora Pass, ALP/TUO/MNO might be a barrier to northward dispersal of White-tailed Ptarmigans (*Lagopus leucurus*). In fact, ptarmigans were then present north of the pass. Paul L. Noble has observed and shot birds near Sonora Peak, ALP/MNO (3493 m elevation), during hunting season, and states that the California Department of Fish and Game has confirmed ptarmigan as far north as Ebbett's Pass, ALP.

CONTRIBUTORS

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LITERATURE CITED

American Ornithologists' Union. 1983. Check-list of North American Birds, 6th ed. Am. Ornithol. Union, Washington, D.C.

American Ornithologists' Union. 1995. Fortieth supplement to the American Ornithologists' Union Check-list of North American Birds. Auk 112:819–830.

Baker, K. 1993. Identification Guide to European Non-Passerines. Br. Trust for Ornithol. Field Guide 24.

Beck, R. H. 1910. Water birds of the vicinity of Point Pinos, California. Proc. Calif. Acad. Sci. 3:57–72.

Bevier, L. R. 1990. Eleventh report of the California Bird Records Committee. W. Birds 21:145–176.

Binford, L. C. 1985. Seventh report of the California Bird Records Committee. W. Birds 16:29–48.

Binford, L. C. 1986. Checklist of California birds. W. Birds 17:1–16.

California Bird Records Committee. 1991. Field list of California Birds. W. Field Ornithol., San Diego.

Clapp, R. B., Klimkiewicz, M. K., and Kennard, J. H. 1982. Longevity records of North American birds: Gaviidae through Alcidae. J. Field Ornithol. 53:81–124.

Dittmann, D. L., and Lasley, G. W. 1992. How to document rare birds. Birding 24:145–159.

Dunn, J. L. 1988. Tenth report of the California Bird Records Committee. W. Birds 19:129–163.

Erickson, R. A., Hamilton, R. A., and Howell, S. N. G. In press. Additional information on migrant birds in northern and central Baja California. Euphonia.

Everett, W. T., and Teresa, S. 1988. A Masked Booby at Islas Los Coronados, Baja California, Mexico. W. Birds 19:173–174.

Garrett, K., and Dunn, J. 1981. Birds of Southern California: Status and Distribution. Los Angeles Audubon Soc., Los Angeles.

Gibson, D. D., and Kessel, B. 1992. Seventy-four new avian taxa documented in Alaska 1976–1991. Condor 94:454–467.

Gilligan, J., Smith, M., Rogers, D., and Contreras, A., eds. 1994. Birds of Oregon: Status and Distribution. Cinclus, McMinnville, OR.

Gould, P. J., King, W. B., and Sanger, G. A. 1974. Red-tailed Tropicbird (*Phaethon rubricauda*), in Pelagic studies of seabirds in the central and eastern Pacific Ocean (W. B. King, ed.), pp. 206–231. Smithsonian Contr. Zool. 158.

Grant, P. J. 1986. Gulls: A Guide to Identification, 2nd ed. Buteo Books, Vermillion, S.D.

Guillén-H., J., Palacios, E., and Amador-S., E. S. 1995. Further records of the Masked Booby from Baja California. W. Birds 26:200–202.

Hamilton, R. A., and Willick, D. R. In press. The Birds of Orange County, California: Status and Distribution. Sea and Sage Audubon Soc., Santa Ana.

Harrison, P. 1983. Seabirds: An Identification Guide. Croom Helm, London.

Harrison, P. 1987. A Field Guide to Seabirds of the World. Stephen Greene, Lexington, MA.

Heindel, M. T., and Garrett, K. L. 1995. Sixteenth annual report of the California Bird Records Committee. W. Birds 26:1–33.

Heindel, M. T., and Patten, M. A. 1996. Eighteenth report of the California Bird Records Committee: 1992 records. W. Birds 27:1–29.

Howell, S. N. G., Spear, L. B., and Pyle, P. 1994. Identification of Manx-type shearwaters in the eastern Pacific. W. Birds 25:169–177.

Howell, S. N. G., and Webb, S. 1995. A Guide to the Birds of Mexico and Northern Central America. Oxford Univ. Press, Oxford, England.

Jehl, J. R., Jr. 1985. Hybridization and evolution of oystercatchers on the Pacific coast of Baja California. Ornithol. Monogr. 36:484–504.

Jonsson, L. 1992. Birds of Europe with North Africa and the Middle East. Princeton Univ. Press, Princeton, N.J.

Kaufman, K. 1990. A Field Guide to Advanced Birding. Houghton Mifflin, Boston.

Kaufman, K. 1994. Changing seasons. Natl. Audubon Soc. Field Notes 48:264–267.

Kenyon, K. W. 1937. Two sea-bird records for southern California. Condor 39:257–258.

Klimkiewicz, M. K., and Futcher, A. G. 1989. Longevity records of North American birds: Supplement 1. J. Field Ornithol. 60:469–494.

Langham, J. M. 1991. Twelfth report of the California Bird Records Committee. W. Birds 22:97–130.

Leader, P. J. 1995. Field identification of Dusky, Radde's and Yellow-streaked warblers. Hong Kong Bird Report 1994, pp. 170–180.

Lehman, P. E. 1994. The Birds of Santa Barbara County, California. Vert. Mus., Univ. of Calif., Santa Barbara.

Lehman, P., and Dunn, J. L. 1985. First record of Little Curlew for North America. Am. Birds 39:247–250.

Lewington, I., Alstrom, P., and Colston, P. 1991. A Field Guide to the Rare Birds of Britain and Europe. Domino, Jersey, U.K.

Luther, J. S. 1980. Fourth report of the California Bird Records Committee. W. Birds 11:161–173.

Luther, J. S., McCaskie, G., and Dunn, J. 1979. Third report of the California Bird Records Committee. W. Birds 10:169–187.

Luther, J. S., McCaskie, G., and Dunn, J. 1983. Fifth report of the California Bird Records Committee. W. Birds 14:1–16.

Marchant, S., and Higgins, P. J., eds. 1990. Handbook of Australian, New Zealand and Antarctic Birds, vol. 1. Oxford Univ. Press, Melbourne.

McCaskie, G. 1970. The occurrences of four species of Pelecaniformes in the southwestern United States. Calif. Birds 1:117–142.

McCaskie, G. 1990. First record of the Band-rumped Storm-Petrel in California. W. Birds 21:65–68.

McCaskie, G., and Webster, R. E. 1990. A second Wedge-tailed Shearwater in California. W. Birds 21:139–140.

McCracken, J. D. 1994. Chapter 11, species account 7, in Ornithology in Ontario (M. K. McNicholl and J. L. Cranmer-Byng, eds.), pp. 279–289. Ont. Field Ornithol. Spec. Publ. 1, Rowan, Ontario.

Morlan, J. 1985. Eighth report of the California Bird Records Committee. W. Birds 16:105–122.

Parmenter, T., and Byers, C. 1991. A Guide to the Warblers of the Western Palaearctic. Bruce Coleman, Uxbridge, England.

Patten, M. A., and Campbell, K. F. 1992. The ninety-second Christmas Bird Count: California summary. Am. Birds 46:1042–1044.

Patten, M. A., and Erickson, R. A. 1994. Fifteenth report of the California Bird Records Committee. W. Birds 25:1–34.

Patten, M. A., Finnegan, S. E., and Lehman, P. E. 1995. Seventeenth report of the California Bird Records Committee: 1991 records. W. Birds 26:113–143.

Patten, M. A., and Marantz, C. A. In press. Implications of vagrancy to California of southeastern vireos and warblers. Auk.

Pyle, P., Hanni, K., and Smith, D. 1994. Bird notes from Isla Guadalupe, including three new island records. Euphonia 3:1–4.

Pyle, P., Howell, S. N. G., Yunick, R. P., and DeSante, D. F. 1987. Identification Guide to North American Passerines. Slate Creek Press, Bolinas, CA.

Pyle, P., and McCaskie, G. 1992. Thirteenth report of the California Bird Records Committee. W. Birds 23:97–132.

Pyle, P., Spear, L. B., and Ainley, D. G. 1993. Observations of Dark-rumped Petrels off Oregon and California. W. Birds 24:110–112.

Roberson, D. 1980. Rare Birds of the West Coast of North America. Woodcock Publ., Pacific Grove, CA.

Roberson, D. 1985. Monterey Birds. Monterey Peninsula Audubon Soc., Carmel, CA.

Roberson, D. 1986. Ninth report of the California Bird Records Committee. W. Birds 17:49–77.

Roberson, D. 1993a. Fourteenth report of the California Bird Records Committee. W. Birds 24:113–166.

Roberson, D. 1993b. Offshore boundaries: A clarification from the ABA Listing Rules Committee and the ABA Checklist Committee. Winging It 5(11):8–9.

Roberson, D. 1996. Identifying Manx Shearwaters in the northeastern Pacific. Birding 28:18–33.

Round, P. D. 1996. Long-toed Stint in Cornwall: The first record for the Western Palearctic. Br. Birds 89:12–24.

Schmidt, O., ed. 1989. Rare birds of Oregon. Ore. Field Ornithol. Spec. Publ. 5.

Shirihai, H., Sinclair, I., and Colston, P. R. 1995. A new species of *Puffinus* shearwater from the western Indian Ocean. Bull. Br. Ornithol. Club 115:75–87.

Small, A. 1994. California Birds: Their Status and Distribution. Ibis Publ., Vista, CA.

Stallcup, R., Morlan, J., and Roberson, D. 1988. First record of the Wedge-tailed Shearwater in California. W. Birds 19:61–68.

Suffel, G. S. 1970. An Olivaceous Flycatcher in California. Calif. Birds 1:79–80.

Svensson, L. 1992. Identification Guide to European Passerines, 4th ed. L. Svensson, Stockholm.

Terrill, S., Able, K. P., and Patten, M. A. 1992. The changing seasons: Summer 1992. Am. Birds 47:1109–1111, 1182.

Terrill, S. B., and Terrill, L. S. 1981. On the field identification of Yellow-green, Red-eyed, Philadelphia, and Warbling vireos. Continental Birdlife 2:144–149.

Yadon, V. L. 1970. *Oceanodroma tethys kelsalli*, new to North America. Auk 87:588–589.

Yee, D. G., Bailey, S. F., and Fix, D. 1994. The autumn migration. Middle Pacific Coast region. Am. Birds 48:147–151.

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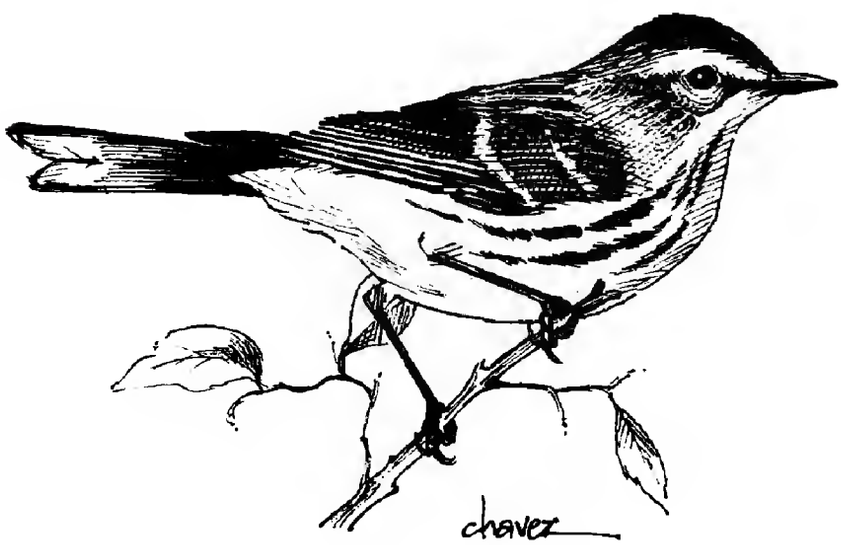

Palm Warbler *Sketch by Jamie M. Chavez*

THE BLACK SKIMMER IN CALIFORNIA: AN OVERVIEW

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Although many avian species in western North America have suffered recent population declines, a few have increased over the same period of time (Jehl and Johnson 1994). Many of the increases, such as parrots' (Psittacidae), can be attributed strictly to anthropogenic influences (Johnston and Garrett 1994). Among those species showing apparent natural population increases in California is the Black Skimmer (*Rynchops niger*), which first occurred in the state in 1962 (Small 1963, 1994) and is now a resident breeder with a population in 1995 of about 1200 pairs. Recent studies in this region have documented its nocturnal activity pattern in the breeding season (Wilson 1995) and winter (Gazzaniga 1995, de la Cueva and Fernández 1996), food habits (Wilson 1995), and pattern of chick growth (Schew and Collins 1990, 1991). In this paper we review the status of the Black Skimmer in California with emphasis on the size and location of breeding colonies and overwintering aggregations (Figure 1). We also include a list of museum specimens of Black Skimmers taken in California (Appendix).

The first Black Skimmer recorded in California was a single individual observed at the mouth of the Santa Ana River in coastal Orange County on 8 September 1962 (Small 1963). The real invasion began 6 years later with the sighting of five skimmers on the Salton Sea at the mouth of the Whitewater River, Riverside County, on 3 July 1968 (McCaskie and Suffel 1971) and the discovery of five nests at the south end of the Salton Sea in 1972 (McCaskie et al. 1974). Although the skimmer populations at the Salton Sea have fluctuated since then, approximately 487 pairs bred there in 1995 (Molina 1996; Table 1). Skimmers spread to the Pacific coast beginning in 1971 and bred in south San Diego Bay in 1976 (Unitt 1984). They spread northward in the ensuing years as regular summer visitors and occasional small overwintering groups (Unitt 1984, L. Hays pers. comm.) before establishing a breeding colony at the Bolsa Chica Ecological Reserve, Orange County, in 1985 (McCaskie 1985, Collins et al. 1991, L. Hays and D. Yparraguerre pers. comm.) and Upper Newport Bay Ecological Reserve, Orange County, in 1986 (McCaskie 1986). These two colonies now each support an annual breeding population of greater than 200 paris (Table 1). The increase in the breeding range of the Black Skimmer has continued with the documentation of breeding on San Francisco Bay in 1994 and 1995 (Layne et al. 1996) and the formation of a new colony at Batiquitos Lagoon in northern San Diego County in 1995 (Whelchel et al. 1996) (Figure 1). A single pair nested at an inland site in the Tulare Lake basin, Kings County, in 1986 (Erickson et al. 1986, Small 1994); four birds appeared at this site again in 1993 but apparently did not nest (Yee et al. 1993). Six pairs bred at

the Seal Beach National Wildlife Refuge in Anaheim Bay, Orange County, in 1987 (McCaskie 1987, B. Massey pers. comm.).

Documentation of colony sizes has varied in detail from year to year. In California, Black Skimmers have a prolonged breeding season lasting well into August and September in some years (Grant and Hogg 1976, Schew and Collins 1991, Stadtlander 1994, Konecny 1995, Molina 1996), and at least some but not all (Collins pers. obs.) of the late-season nests are the result of renesting. However, no detailed information on the rate of renesting is available. Thus, an exact count of the number of nesting pairs at each site

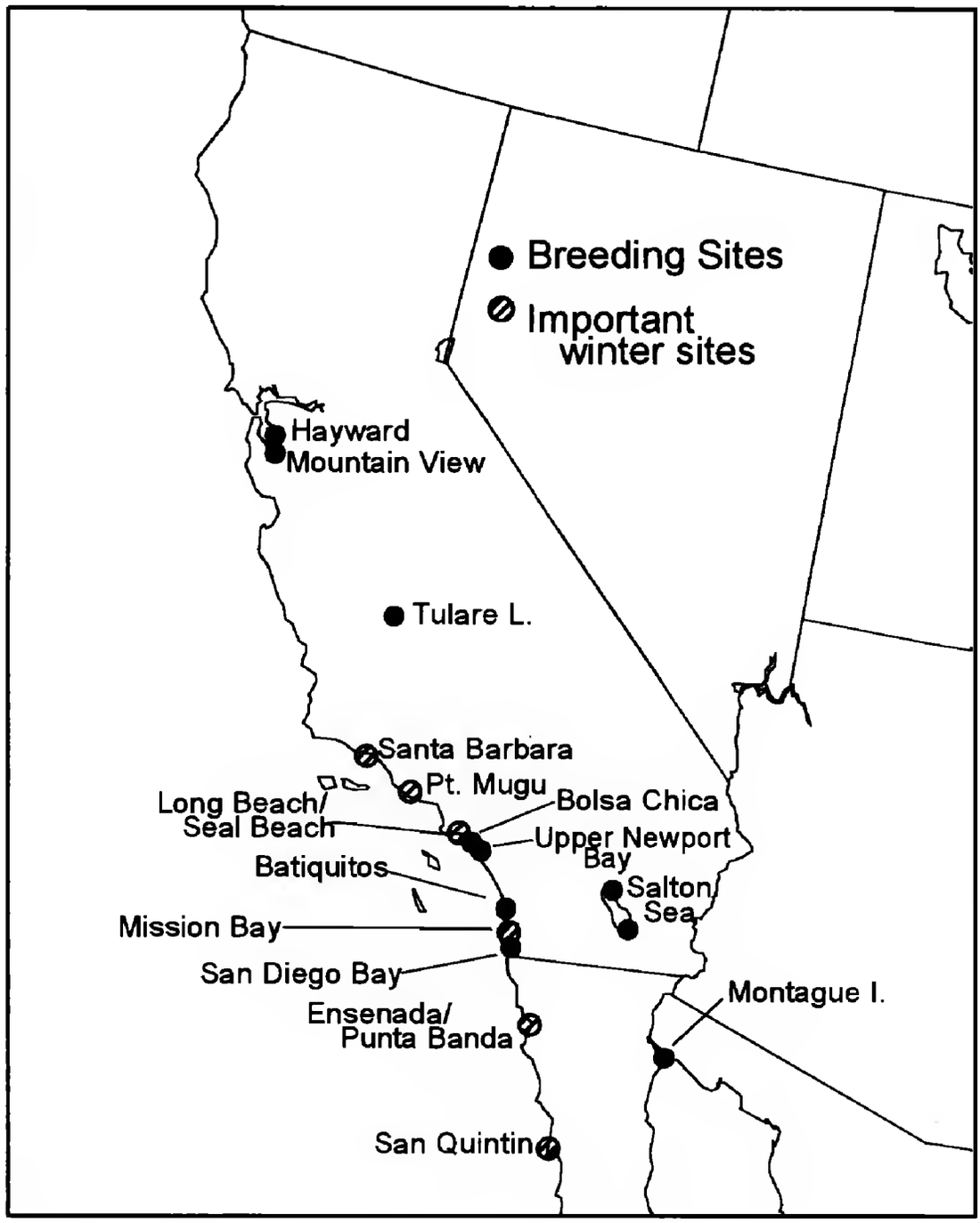

Figure 1. Breeding colony sites (filled circles) and important winter concentration sites (hatched circles) of the Black Skimmer in California and northern Baja California.

is usually not possible, and only crude estimates have been reported. We regard the number of nests initiated as the most consistent year-to-year index of the size of the skimmers' breeding population, even though it will

Table 1 Number of Pairs or Nest Initiations (*) by Black Skimmers in California Breeding Colonies 1972–1995

Year	Salton Sea[a]	San Diego Bay[b]	Bolsa Chica[c]	Upper Newport Bay[c]	San Francisco Bay[d]	Batiquitos Lagoon[e]
1972	5					
1973	3					
1974	10					
1975	9					
1976	25	1				
1977	100	3				
1978	100	6				
1979	ND[f]	14				
1980	0	30				
1981	0	25				
1982	0	35				
1983	0	50				
1984	0	++[g]				
1985	47	150	10*			
1986	300	130	60*	2		
1987	500	++	106*	ND		
1988	100	200	150*	15		
1989	0	++	112*	45		
1990	100	++	338*	14		
1991	80	>157[h]	398*	40		
1992	100	++	278*	++		
1993	300	326 (473*)	284*	++		
1994	450	310 (420*)	353*	++	2*	
1995	487	>200[h]	201*	451*	2*	14*

[a]Data from Molina (1996).
[b]Data from H. R. Carter et al. (unpubl. data), Stadtlander (1994), Konecny (1995), and F. Schaffner, E. Copper, and D. Stadtlander (pers. comm.).
[c]Data from E. Burkett, L. Hays, K. Gazzaniga, and M. Taylor (pers. comm.).
[d]Data from Layne et al. (1996).
[e]Data from Whelchel et al. (1996).
[f]ND, no data available.
[g]++, birds seen, possibly in large numbers, but no nest-census data available.
[h]Minimal count; entire colony not censused.

almost certainly exceed the actual number of breeding pairs by an amount yet to be determined. This is the value, when known, listed in Table 1.

The breeding population of skimmers at the Salton Sea has shown the most dramatic fluctuations, with more than 100 nests reported by 1977, few if any nests from 1980 to 1983, and a rebound to a high of over 500 nests in 1987 (Molina 1996, Table 1). Most of the coastal colonies have shown a nearly steady year-to-year increase in numbers of nests with occasional spurts such as that noted at Bolsa Chica, from 112 nests in 1989 to 338 in 1990 (Table 1).

The status of the Black Skimmer in adjacent Baja California, Mexico, has been summarized by Palacios and Alfaro (1992). Skimmers have been recorded regularly in Baja California since 1979 (Wilbur 1987) and are now "considered a locally common bird on the northwestern coast of Baja California, not only in winter but year round" (Palacios and Alfaro 1992). There have also been winter and breeding-season records of skimmers in Baja California Sur since 1985 (Palacios and Alfaro 1992, Carmona et al. 1995). The only known Baja California breeding colony is on Montague Island in the northernmost Gulf of California in the Colorado River delta; breeding was suspected in 1992 (Palacios and Mellink 1993) and confirmed (14 nests) in 1993 (Peresbarbosa and Mellink 1994); 21 nests were found in 1994 (Peresbarbosa 1995). Some of the skimmers wintering in northwestern Baja California and nesting on Montague Island were banded in southern California colonies as chicks (Palacios and Alfaro 1992, Peresbarbosa and Mellink 1994). Although no nesting has been noted, skimmers have been observed since 1994 in spring and summer in man-made ponds at Cerro Prieto, in the Mexicali Valley (K. Radamaker pers. comm.). The skimmers in Baja California Sur may have originated from mainland colonies in Sonora or Sinaloa, Mexico (Palacios and Alfaro 1992, Carmona et al. 1995).

Away from the breeding colonies and known coastal wintering sites, Black Skimmers are noted regularly along the coast from San Diego north to Monterey Bay. For example, there are 37 records of single skimmers or small groups (up to four) in coastal San Luis Obispo County since 1977, all but seven of which were between March and October (T. Edell pers. comm.). The first sighting in northern California was of a single bird at Bodega Bay, Sonoma County, 24 July 1971 (DeSante and LeValley 1971); more recently, birds have also reached coastal San Mateo County (Yee et al. 1995b,c), Marin County (Yee et al. 1993, 1994, 1995a), and coastal Sonoma County again (Bailey and Fix 1994), as well as a number of sites on San Francisco Bay. All records on the immediate coast of northern California are from 22 May to 14 August. The only Channel Islands record is of four individuals seen on Santa Catalina Island, 28 June 1995 (McCaskie 1995b).

Rosenberg et al. (1991) summarized five records (involving six individuals) for the lower Colorado River valley; the first record for that region was in 1977, and all records fall between 16 May and 3 September. Other inland sightings for southern California are of a juvenile near Lakeview and at Lake Elsinore, Riverside County, 27 August to 4 September 1978 (Garrett and Dunn 1981), two at Twentynine Palms, San Bernardino County, 25 August

1994 (McCaskie 1995a), and two at China Lake Naval Weapons Center, extreme northeastern Kern County, 28 July 1990 (McCaskie 1990). At least the first of these inland records suggests an occasional overland route from the Salton Sea to the coast. Additional records of Black Skimmers at inland sites, in Durango and Jalisco, Mexico, have been reported by Williams (1982).

Unlike Atlantic-coast populations nesting north of North Carolina (Burger and Gochfeld 1990, Gochfeld and Burger 1994), Black Skimmers breeding in California are not all long-distance migrants; many winter locally in southern California (Gazzaniga 1995, 1996). Wintering concentrations of skimmers have been noted at Santa Barbara, Santa Barbara County, Seal Beach and Upper Newport Bay, Orange County, and Mission Bay and San Diego Bay, San Diego County (Gazzaniga 1995, 1996) (Figure 1). More distant locations include Ensenada and San Quintín in Baja California, Mexico (Palacios and Alfaro 1992). Observations of banded birds have indicated that a few skimmers from the Salton Sea winter on the coast (Molina 1996). Individuals banded at Bolsa Chica have been observed in winter flocks from Santa Barbara south to San Quintín (Gazzaniga 1995, 1996), and birds from San Diego have been observed in both Long Beach and Santa Barbara (M. Taylor and C. Collins unpubl.) and Ensenada (K. Molina pers. comm.). Two of the chicks banded in San Francisco Bay in 1995 (Layne et al. 1996) have been observed in winter flocks in southern California: one was observed in Santa Barbara on 11 February 1996 (K. Molina and K. Garrett pers. obs.), another in Long Beach 4–21 April 1996 (Taylor and Collins pers. obs.). Observations of uniquely banded skimmers have demonstrated a degree of year-to-year overwintering site fidelity as well as some intraseasonal movements between sites (Gazzaniga 1995, 1996). Further observations of these uniquely color-banded birds will aid in quantifying the pattern of juvenile and adult survival during the winter (Gazzaniga 1995, Taylor and Collins unpubl.).

Skimmers banded as chicks at Bolsa Chica have been observed as breeders in colonies at San Diego (J. Konecny pers. comm.), Seal Beach (B. Massey pers. comm.), and Montague Island (Peresbarbosa and Mellink 1994). Although the colonies are occupied annually, these observations of banded birds suggest reduced philopatry, at least among prebreeders, and a noticeable amount of mixing of birds among the several breeding colonies. Breeding at two years of age was documented for a banded skimmer nesting at Seal Beach in 1987 (B. Massey pers. comm.).

The Black Skimmer is now a well-established resident breeding species in southern California and Baja California. Further population increases at both some of the well-established colonies and also at the three newly colonized sites (Layne et al. 1996, Whelchel 1996) over the next few years seem likely. The formation of additional breeding colonies, however, is more apt to depend on the availability of suitable sites sufficiently protected from human disturbance. Black Skimmers on both the Atlantic and Pacific coasts frequently nest in association with various species of terns (*Sterna* spp.) (Gochfeld and Burger 1994, Collins et al. 1991), and such an association may prove to be a pre- or co-requisite condition for the establishment of new skimmer colonies in California and Baja California.

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We are grateful for the permission granted us to monitor skimmer populations in the several breeding colonies. We are also indebted to the numerous individuals mentioned above, and particularly Guy McCaskie, who have so freely shared their field observations of skimmers with us and thereby made this a much more complete overview. Kathy Molina and Philip Unitt made helpful comments on earlier drafts of this paper, and Mark C. Wimer prepared Figure 1.

LITERATURE CITED

Bailey, S. F., and Fix, D. 1994. The winter season. Middle Pacific Coast region. Natl. Audubon Soc. Field Notes 48:337–339.

Burger, J., and Gochfeld, M. 1990. The Black Skimmer: Social Dynamics of a Colonial Species. Columbia Univ. Press, New York.

Carmona, R., Fernández, G., Brabata, G., and Arvizu, E. 1994. Variación temporal en la abundancia del Rayador, *Rynchops niger* (Charadriiformes: Laridae) en Baja California Sur, México. Rev. Biol. Trop. 43:313–315.

Collins, C. T., Schew, W. A., and Burkett, E. 1991. Elegant Terns breeding in Orange County, California. Am. Birds 45:393–395.

De la Cueva, H., and Fernández, G. 1996. Night feeding of Black Skimmers at Estero Punta Banda, Baja California, Mexico. W. Birds 27:162–163.

DeSante, D., and LeValley, R. 1971. The nesting season. Middle Pacific Coast region. Am. Birds 33:899–904.

Erickson, R. A., Bailey, S. F., and Barron, A. D. 1986. The nesting season. Middle Pacific Coast region. Am. Birds 40:1248–1254.

Garrett, K., and Dunn, J. 1981. Birds of Southern California. Los Angeles Audubon Soc., Los Angeles.

Gazzaniga, K. T. 1995. Distribution and dispersal of Black Skimmers (*Rynchops niger*) in southern California. M. S. thesis, Calif. State Univ., Long Beach.

Gazzaniga, K. T. 1996. Overwintering of Black Skimmers in California: Site fidelity and inter-site movements. W. Birds 27:136–142.

Gochfeld, M., and Burger, J. 1994. Black Skimmer (*Rynchops niger*), in The Birds of North America, no. 108 (A. Poole and F. Gill, eds.). Acad. Nat. Sci., Philadelphia.

Jehl, J. R., Jr., and Johnson, N. K. (eds.). 1994. A century of avifaunal change in western North America. Studies Avian Biol. 15.

Johnston, R. F., and Garrett, K. 1994. Population trends of introduced birds in western North America, in A century of avifaunal change in western North America (J. R. Jehl, Jr., and N. K. Johnson, eds.). Studies Avian Biol. 15:221–231.

Konecny, J. 1995. Colonial seabirds and the Western Snowy Plover in south San Diego Bay 1994. Bay and Estuary Program, U. S. Fish & Wildlife Service, 2730 Loker Ave. W., Carlsbad, CA 92008.

Layne, V. L., Richmond, R. J., and Metropulos, P. J. 1996. First nesting of Black Skimmers on San Francisco Bay. W. Birds 27:159–162.

McCaskie, G. 1985. The nesting season. Southern Pacific Coast region. Am. Birds 39:961–963.

McCaskie, G. 1986. The nesting season. Southern Pacific Coast region. Am. Birds 40:1254–1257.

McCaskie, G. 1987. The nesting season. Southern Pacific Coast region. Am. Birds 41:1486–1489.

McCaskie, G. 1990. The nesting season. Southern Pacific Coast region. Am. Birds 44:1184–1188.

McCaskie, G. 1995a. The fall season. South Pacific Coast region. Natl. Audubon Soc. Field Notes 49:99–103.

McCaskie, G. 1995b. The summer season. Souther Pacific Coast region. Natl. Audubon Soc. Field Notes 49:979–983.

McCaskie, G., Liston, S., and Rapley, W. A. 1974. First nesting of Black Skimmers in California. Condor 76:337–338.

McCaskie, G., and Suffel, S. 1971. Black Skimmers at the Salton Sea, California. Calif. Birds 2:69–71.

Molina, K. 1996. Population status and breeding biology of Black Skimmers at the Salton Sea. W. Birds 27:143–158.

Palacios, E., and Alfaro, L. 1992. Occurrence of Black Skimmers in Baja California. W. Birds 23:173–176.

Palacios, E., and Mellink, E. 1993. Additional records of breeding birds from Montague Island, northern Gulf of California. W. Birds 24:259–262.

Peresbarbosa, E. 1995. Fluctuaciones espaciales y temporales de las aves que anidan en la Isla Montague, Golfo de California, México. M. S. thesis, Centro de Investigación Científica y de Educación Superior de Ensenada.

Peresbarbosa, E., and Mellink, E. 1994. More records of breeding birds from Montague Island, northern Gulf of California. W. Birds 25:201–202.

Rosenberg, K. V., Ohmart, R. D., Hunter, W. C., and Anderson, B. W. 1991. Birds of the Lower Colorado River Valley. Univ. Ariz. Press, Tucson.

Schew, W. A., and Collins, C. T. 1990. Age and sex determination in Black Skimmer chicks. J. Field Ornithol. 61:174–179.

Schew, W. A., and Collins, C. T. 1991. Annual and within-year variability in growth patterns of Black Skimmer (*Rynchops niger*) chicks. Proc. Int. Symp. Mar. Biol. 8:87–94.

Small, A. 1963. The fall migration. Southern Pacific Coast region. Audubon Field Notes 17:66–71.

Stadtlander, D. 1994. Colonial seabirds and the Western Snowy Plover nesting in south San Diego Bay 1993. Bay and Estuary Program, U. S. Fish & Wildlife Service, 2730 Loker Ave. W., Carlsbad, CA 92008.

Unitt, P. 1984. The birds of San Diego County. San Diego Soc. Nat. Hist. Memoir 13.

Whelchel, A. W., Keane, K. M., and Josselyn, M. N. 1996. Establishment of a new Black Skimmer colony in southern California. W. Birds 27:164–167.

Wilbur, S. R. 1987. Birds of Baja California. Univ. Calif. Press, Berkeley.

Williams, S. O., III. 1982. Black Skimmers on the Mexican plateau. Am. Birds 36:255–257.

Wilson, J. F. 1995. Diel periodicity and dietary breadth in the Black Skimmer: Implications for coexistence in a mixed-species colony of seabirds. M. S. thesis, Calif. State Univ., Fullerton.

Yee, D. G., Bailey, S. F., and Deuel, B. E. 1993. The spring season. Middle Pacific Coast region. Am. Birds 47:449–452.

Yee, D. G., Fix, D., and Bailey, S. F. 1994. The summer season. Middle Pacific Coast region. Natl. Audubon Soc. Field Notes 48:984–987.

Yee, D. G., Bailey, S. F., Fix, D., and Singer, D. S. 1995a. Middle Pacific Coast region. Natl. Audubon Soc. Field Notes 49:95–99.

Yee, D. G., Bailey, S. F., and Singer, D. S. 1995b. The winter season. Middle Pacific Coast region. Natl. Audubon Soc. Field Notes 49:304–307.

Yee, D. G., Bailey, S. F., and Singer, D. S. 1995c. The summer season. Middle Pacific Coast region. Natl. Audubon Soc. Field Notes 49:975–979.

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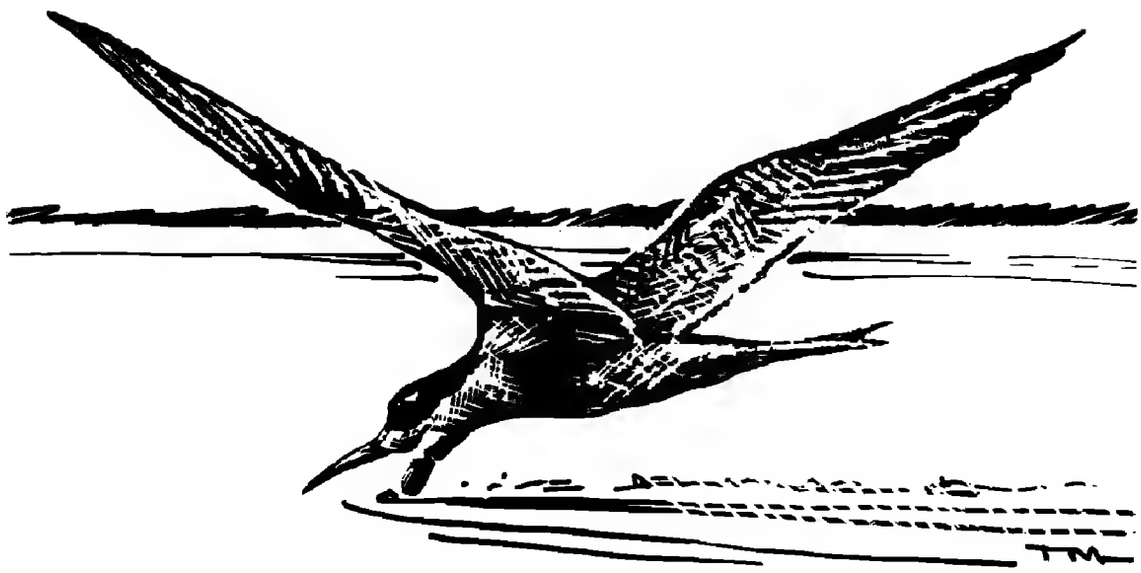
Appendix. Specimens of the Black Skimmer from California. CSULB, California State University, Long Beach; CSUN, California State University, Northridge; LACM, Natural History Museum of Los Angeles County; SBCM, San Bernardino County Museum; SDNHM, San Diego Natural History Museum. Inquiries to Louisiana State University, the Museum of Vertebrate Zoology, University of California, Berkeley, and the University of California, Los Angeles, revealed no Black Skimmer specimens.

South end Salton Sea, Imperial County
- 28 Apr 1979, adult, mount, SBCM M50894
- 19 Jul 1991, juv., study skin, LACM 106066
- 19 Jul 1991, chick, in alcohol, LACM 106446
- 31 Jul 1991, chick, in alcohol, LACM 106447
- 31 Jul 1991, chick, in alcohol, LACM 106448
- 31 Jul 1991, chick, in alcohol, LACM 106449
- 31 Jul 1991, chick, in alcohol, LACM 106450
- 31 Jul 1991, chick, in alcohol, LACM 106451
- 31 Jul 1991, chick, in alcohol, LACM 106452
- 31 Jul 1991, chick, in alcohol, LACM 106453
- 4 Jun 1993, adult, skeleton, LACM 107571
- 17 Jul 1993, chick, study skin, SDNHM 48801
- 19 Sep 1993, juv., flat skin/skeleton, LACM 107762
- 13 Aug 1994, juv., study skin, LACM 108428
- 3 Sep 1994, juv., study skin, LACM 108429
- 3 Sep 1994, juv., study skin, LACM 108430
- 12 Aug 1994, adult, skeleton, LACM 108447
- 12 Aug 1994, adult, skeleton, LACM 108448
- 3 Sep 1995, juv., study skin, LACM 108946

North end Salton Sea, Riverside County
- 3 Jul 1968, adult, study skin, LACM 76788
- 17 May 1970, adult, mount, SBCM S33298
- 24 Jul 1993, juv., study skin, LACM 107763
- 7 Aug 1993, juv., study skin, LACM 108431
- 7 Jul 1994, adult, skeleton, LACM 108446

San Diego Bay, San Diego County
31 Jul 1977, adult, study skin/partial skeleton, SDNHM 40388
6 Jul 1978, imm., skeleton, SDNHM 42107
22 Jul 1990, postjuv., study skin/partial skeleton, SDNHM 47409
5 Jul 1994, adult, skeleton, SDNHM 49011
Mission Bay, San Diego County
22 Mar 1989, adult, study skin/partial skeleton, SDNHM 45694
Jan 1994 (exact date unknown), age?, skeleton, SDNHM 48839
Bolsa Chica, Orange County
Date unknown, chick, in alcohol, CSULB 6465
Date unknown, chick, in alcohol, CSULB 6466
28 Jun 1986, chick, study skin, CSULB 6482
10 Sep 1987, juv., study skin, CSULB 6783
16 Jun 1989, adult, skeleton, CSULB 7617
15 Aug 1989, adult, skeleton, CSULB 7166
20 Aug 1989, adult, skeleton, CSULB 7188
20 Jul 1990, adult, skeleton, CSULB 7398
31 Aug 1991, chick, study skin, CSULB 7555
5 Jun 1994, adult, skeleton, CSULB 7600
Terminal Island, Los Angeles County
10 Mar 1993, adult, study skin, CSUN 1282



Black Skimmer *Sketch by Tim Manolis*

OVERWINTERING OF BLACK SKIMMERS IN CALIFORNIA: SITE FIDELITY AND INTER-SITE MOVEMENTS

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During the last two decades, Black Skimmers (*Rynchops niger*) have become increasingly common along the southern California coast. They are now found year-round in southwestern California (Collins et al. in press) and in northwestern Baja California (Palacios and Alfaro 1992). Little detailed information has been published, however, about their winter distribution and abundance in this region. Most previous studies of the Black Skimmer have focused on the breeding season, with little attention paid to survival, behavior, and habitat requirements in the wintering areas. Since the difficulties skimmers face on the breeding grounds (e.g., predation, human disturbance, parasitism, disease, inclement weather, contaminants, entanglements, and food shortage) may affect them also on the wintering grounds, Burger and Gochfeld (1990) suggested that further studies of wintering birds are needed. They suggested also that most mortality of adults takes place away from the breeding grounds and that young birds are particularly vulnerable during their first winter.

Because of their long migrations and an inability of researchers to follow specific individuals or populations, the winter ecology of the Black Skimmer in the eastern U.S. has been little studied. With just a few breeding colonies and extensive overwintering, the Pacific coast offers a unique opportunity to study the winter ecology of Black Skimmers from known colonies (Gazzaniga 1995). In this article, I delineate the skimmer's important wintering sites, examine its seasonal abundance on these wintering areas, document dispersion of skimmers among sites, and examine winter site fidelity.

METHODS

The principal colony of origin of the skimmers followed in this study is at Bolsa Chica Ecological Reserve, Huntington Beach, California (33° 41' 30" N, 118° 03' 00" W) (Figure 1). In 1988, Charles T. Collins began banding skimmers at Bolsa Chica with the goal of determining whether young returned to the natal colony. Marking consisted of colored tape, denoting the annual cohort, placed around a United States Fish and Wildlife Service numbered aluminum band. Beginning in 1992, chicks were not only color-banded by year but also marked individually with a specially constructed band of laminated plastic into which an alphanumeric code had been etched. The plastic band was placed on the tarsus and then heat-sealed with a hand-held butane burner. These bands were later read with a telescope or binoculars on birds in winter roosting flocks. Older chicks were aged and sexed by wing measurements and body weight (Schew and Collins 1990).

I established six survey sites (Figure 1) and organized a network of seven cooperating observers. From September to May, from 1992 to 1995, Santa

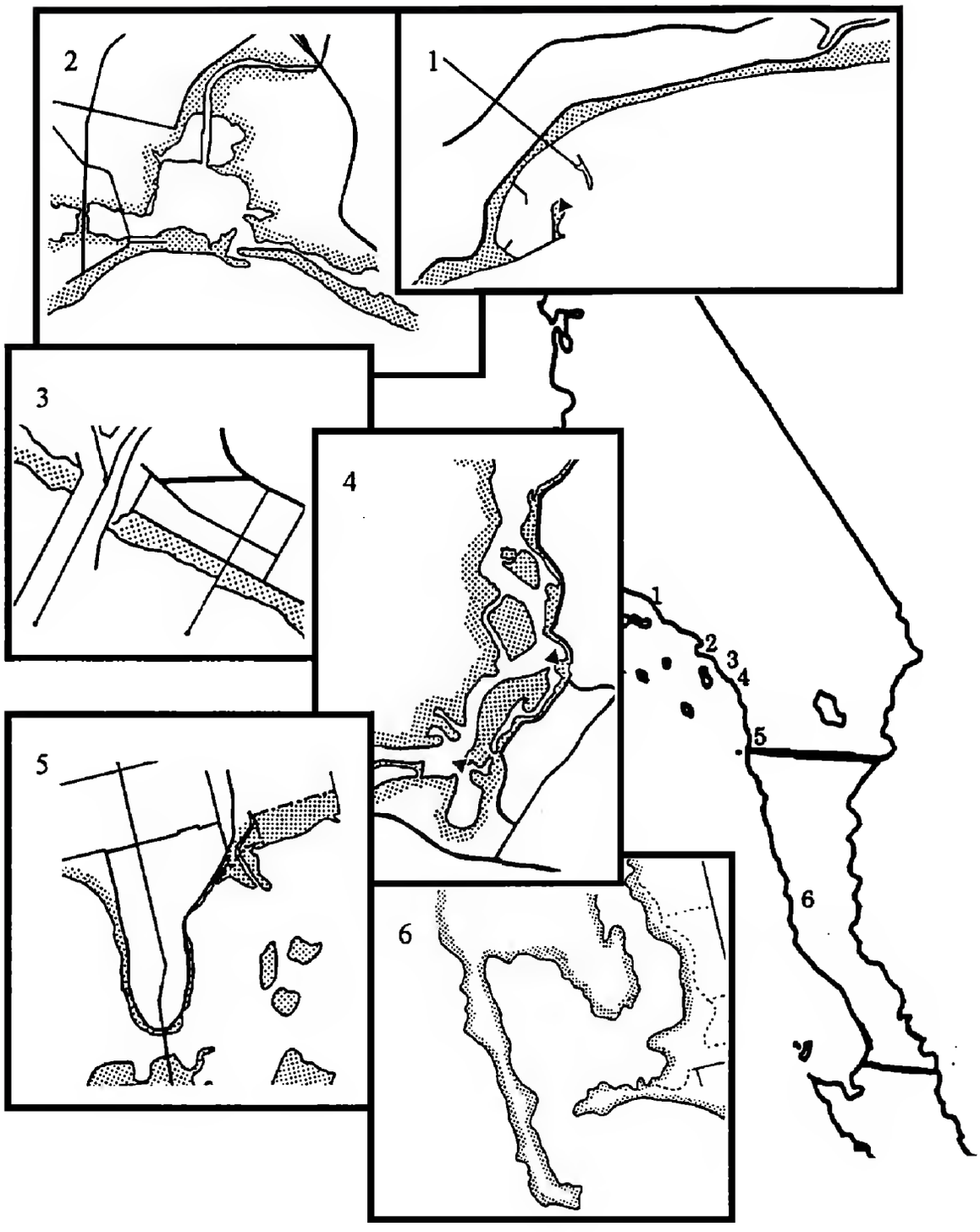

Figure 1. Sites of regular surveys for wintering Black Skimmers. 1, beach front and harbor sand spit, East Beach, city of Santa Barbara, Santa Barbara County. Monitor: Florence Sanchez. 2, coastal sand spit, mouth of Callegaus Creek, Point Mugu Naval Air Station, Ventura County. Monitors: Tom Keeney and Tiki Baron. 3, beach front, city of Seal Beach, near the mouth of the San Gabriel River, Orange County. Monitor: Kathleen Gazzaniga. 4, estuarine sand spit, near mouth of Big Canyon and Shellmaker Island, Upper Newport Bay, Newport Beach, Orange County. No specific monitor. 5, beach front, Kendall–Frost Ecological Reserve, Mission Bay, San Diego, San Diego County. Monitor: Virginia "Ginger" Johnson. 6, sand spits near Cemetery Point, Punta Azufre, and Sand Point, all in San Quintin Bay, Baja California, Mexico. Monitors: Eduardo Palacios, Lucia Alfaro, and David Ward and associates.

Barbara (Santa Barbara County) and Seal Beach (Orange County) were surveyed weekly, Point Mugu (Ventura County) and Mission Bay (San Diego County) at least monthly, and Upper Newport Bay (Orange County) and San Quintin (Baja California) irregularly.

To describe the pattern of the skimmers' use of each site, I devised an "observation index" to quantify the likelihood that a particular individual will be seen. The observation index is defined as the percentage of times an individual bird was seen at a site during the interval between the first and last sightings in any single winter.

RESULTS

Skimmers roosted extensively at all sites monitored during this study except Upper Newport Bay; each site was occupied during the entire winter season. The results of the censuses for these five sites are presented in Figure 2. In addition to these sites, wintering skimmers were sighted at Ensenada (Baja California, Mexico), the mouth of the Santa Margarita River, Camp Pendleton (San Diego County), Shoreline Aquatic Park, Long Beach (Los Angeles County), Malibu Beach (Los Angeles County), and Princeton Harbor (San Mateo County). All of the winter sightings of roosting Black Skimmers were near beaches and estuaries, usually with gulls and terns, occasionally with shorebirds.

At Santa Barbara, in 1992, skimmers first arrived in September, increased steadily until they reached their peak (117) in February 1993, and then decreased during March and April. Only two, a banded yearling and an adult, remained through the summer. During the 1993–1994 season, skimmers arrived sooner, attained greater numbers, and left later than in the previous year. During the summer of 1994, five skimmers remained in Santa Barbara; two were unbanded yearlings and three were adults.

At Point Mugu, the first counts each season were not taken until October; therefore, exact arrival dates are not known. Data were recorded inconsistently from January to June of 1993. During each season, the skimmers reached their peak (139 in 1992, 168 in 1993) in October and tapered off until December (no data were taken in December of 1993), then increased again in January, and tapered off from March to June.

At Seal Beach, the first skimmers arrived each season in September, increased until they reached a peak (200) during November and December, and then tapered off from January through March. There was a slight increase in numbers during May of both years.

At Mission Bay, there was an increase in numbers each season during October and November. The arrival date in 1992 is unknown; nonetheless, numbers of skimmers were stable by November and began to decrease from January to February. In 1993, skimmers began to arrive in September, reached their peak (140) during October and November, and began to decrease in January.

At San Quintin, in 1992, the first skimmers appeared in September, followed by a steady increase in numbers until November. Then, although there were wide monthly variations, the mean numbers roughly stabilized until April, after which they started to decrease. The highest count was of

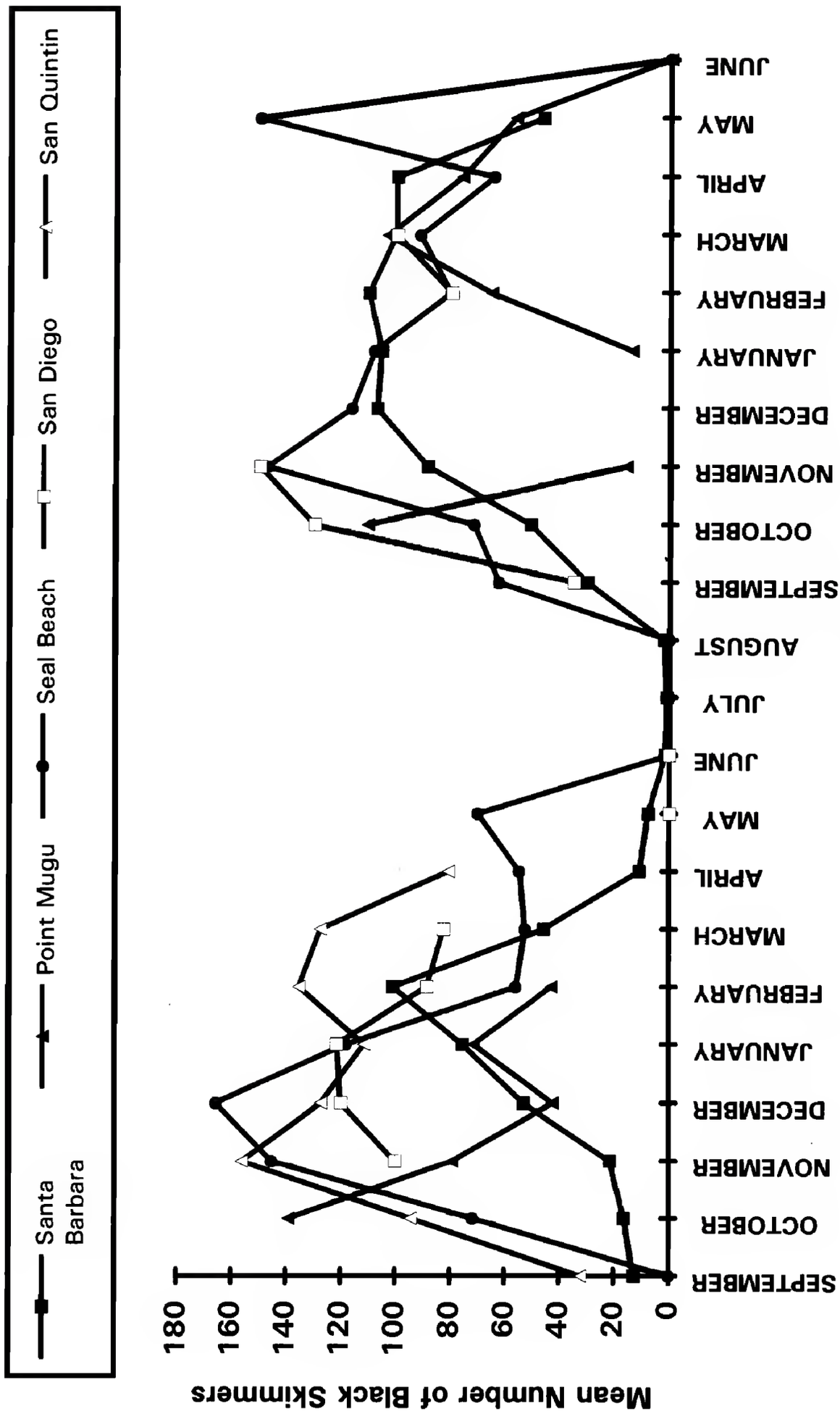

Figure 2. Mean numbers of Black Skimmers observed by month, 1992–1994, at five Pacific coast sites.

265 on 18 February 1993. No adequate data were taken for this site during the winter of 1993–94.

For all sites except San Quintin, I used a *t* test to assess the difference in skimmer numbers for the winters of 1992–93 and 1993–94. At Santa Barbara, there was a significant increase ($t = -5.93$, $p < 0.01$); at all other sites, there was no significant difference between the two years.

At Bolsa Chica Ecological Reserve, 55 skimmers in 1992, 69 skimmers in 1993, and 14 in 1994 were color-banded. In 1992, 31 (56.4%) of these birds were seen at least once during their first winter after banding. Twelve (22%) of these were seen in their second winter, and five (9%) were seen in their third winter. Of the young banded in 1993, 38 (55%) were seen at least once their first winter. Of the young banded in 1994, 14 (100%) were seen at least once their first winter.

Of the surviving 1992 cohort, 20 (65%) were seen at only one site over their first winter season, while the remaining 11 (35%) were seen at more than one site. During their second winter, 10 (84%) were seen at one site, while two (16%) were seen at more than one site. Of the birds hatched in 1993, 23 (61%) were seen at one site during their first winter, while the remaining 15 (39%) were seen at more than one site. Of those hatched in 1994, 12 (86%) were seen one site during their first winter, while the remaining two (14%) were seen at more than one site.

Of the surviving 1992 cohort, in their second winter, six (50%) of the birds returned to the same site as in their first winter, three (25%) moved to a new site, and three (25%) moved among sites during both winter seasons. In their third winter, three (60%) of the birds returned to the same site and two (40%) moved to a new site. Of the surviving 1993 cohort, in their second winter, 12 (60%) returned to the same site, five (25%) moved to a new site, and three (15%) moved among sites during both years.

I figured the observation index (the percentage of times an individual bird was seen at a site during the interval between when it was first seen and when it was last seen) for all sites, though at Point Mugu, Upper Newport Bay, Mission Bay, and San Quintin repeated sightings of individual birds were too few for this index to be useful. I did not include birds that were seen only once, which would have greatly inflated the index for all sites. During the 1992–93 season, the index for Santa Barbara was 65.4%; that for Seal Beach, 52.2%. During the 1993–1994 season, the indices were 74.6% for Santa Barbara, 83.5% for Seal Beach. These figures indicate that if a bird is in the area, there is a high likelihood that it will be observed repeatedly.

DISCUSSION

The Princeton Harbor sighting (260 kilometers to the north of Bolsa Chica), 20 February 1993, was one of the northernmost records of the Black Skimmer in California to date (see also Layne 1996). This bird was banded at Bolsa Chica Ecological Reserve in 1992 and seen 12 times in Santa Barbara between 20 October 1992 and 10 February 1993; it was not resighted after 20 February 1993. At Seal Beach during the 1992–93 season numbers decreased in December, corresponding to a movement of marked birds from Seal Beach to Santa Barbara. In addition, one bird moved

from Seal Beach to Ensenada and two moved from Seal Beach to Upper Newport Bay. At this time, there were a number of winter storms and a sharp decrease in sightings of young skimmers, implying that many died. Skimmers appeared to have a higher mortality rate coupled with, and in part due to, a higher dispersal rate among sites during this period of stormy weather. Skimmers may be moving from the Bolsa Chica and Newport Bay breeding colonies to Seal Beach at the onset of winter, then leaving the area for other sites later in the season, thereby adding another component to the decrease in numbers in midwinter at Seal Beach.

The movements of young skimmers often corresponded with increases and decreases in the total number of skimmers at each site. This may signify that adults and young are moving from site to site together. Therefore, the site fidelity and movements I describe for the banded young may be representative of the skimmer population as a whole.

At Point Mugu during the 1993–94 season, there was a significant decrease in numbers of skimmers during December. This pattern was unlike that at any other site monitored during this study, except Seal Beach. The decrease may have been due to weather or food availability but is more likely explained by the sampling technique at this location. The Point Mugu site is located on a naval air station in which surveyors have been restricted from some areas. Skimmers may have been roosting in these unsurveyed areas and may not, in fact, have completely left the area. Unfortunately, data from the first season were insufficient for comparison with the second season to show if there was a similar decrease during December 1992. More complete surveys of the Point Mugu Naval Air Station are needed for reliable conclusions about the overall use of this site by wintering skimmers to be drawn.

Numbers at Santa Barbara increased significantly from winter 1992–93 to winter 1993–94, while those at all other sites remained nearly the same. The wintering areas farther south may already be well established, whereas the northern sites are not as stable (or more dynamic) because of the relatively recent range expansion. Other factors such as weather and food resources may also come into play; these were not examined during this study. Although my study provides a first analysis of the winter population dynamics of the Black Skimmer in southern California, investigation of all aspects of the species' biology remains appropriate as it continues to expand its range northward.

SUMMARY

Beginning in 1992, juvenile Black Skimmers at Bolsa Chica Ecological Reserve, Orange County, were equipped with uniquely numbered color banded so their subsequent movements could be tracked. At Santa Barbara, Point Mugu, Seal Beach, and Mission Bay in Upper California and at San Quintin in Baja California regular observations made from September to May in 1992–93, 1993–94, and 1994–95. Skimmers arrived at their wintering sites during September and October, reached peak population levels in midwinter, then departed during April and May. Site fidelity was

high; over 50% of each cohort remained at one site through the winter, although there was also some regular movement between sites within the winter season.

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LITERATURE CITED

Burger, J., and Gochfeld, M. 1990. The Black Skimmer: Social Dynamics of a Colonial Species. Columbia Univ. Press, New York.

Collins, C. T., and Garrett, K. G. 1996. The Black Skimmer in California: An overview. W. Birds 27:127–135.

Gazzaniga, K. T. 1995. Distribution and dispersal of Black Skimmers (*Rynchops niger*) in southern California. M. S. thesis, Calif. State Univ., Long Beach.

Layne, V. L., Richmond, R. T., Metropulos, P. T. 1996. First nesting of Black Skimmers on San Francisco Bay. W. Birds 27:159–162.

Palacios, E., and Alfaro, L. 1992. Occurrence of Black Skimmers in Baja California. W. Birds 23:173–176.

Schew, W. A., and Collins, C. T. 1990. Age and sex determination in Black Skimmer chicks. J. Field Ornithol. 61:174–179.

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POPULATION STATUS AND BREEDING BIOLOGY OF BLACK SKIMMERS AT THE SALTON SEA, CALIFORNIA

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Black Skimmers (*Rynchops niger*) are widely distributed along the eastern and southern coasts of North America. Along the western coast their distribution is more restricted, ranging from Mexico north to southern California (American Ornithologists' Union 1983, Collins and Garrett 1996); a few pairs have nested recently in coastal northern California (Yee et al. 1995, Layne et al. 1996). The ecology, reproductive biology, and behavior of Black Skimmer populations along the Atlantic coast and Gulf of Mexico have been the subject of numerous investigations (Erwin 1977, 1979, Loftin 1982, Custer and Mitchell 1987, Quinn 1989, 1990, Burger and Gochfeld 1990) and have been reviewed by Gochfeld and Burger (1994). The potential effects of environmental contaminants on these populations have also been described in several recent publications (Blus et al. 1980, White et al. 1984, King et al. 1986, King 1989, and Burger and Gochfeld 1992). Except by Schew and Collins (1990, 1991), little information has been published on the Pacific coast breeding populations. Black Skimmers nesting at the Salton Sea, a large interior saline basin in extreme southern California, have received only cursory attention since the establishment of breeding in 1972 (McCaskie et al. 1974, Grant and Hogg 1976, Grant 1978). This unique interior population is well established, having persisted for nearly 25 years. In this paper I describe the nesting habitat, population trends, phenology, clutch size, and hatching success of Black Skimmers nesting at the Salton Sea during the 1990s.

STUDY AREA AND METHODS

The Salton Sea lies within the Colorado Desert of Riverside and Imperial counties in southeastern California (Figure 1). Covering only a portion of the bed of ancient Lake Cahuilla and at an elevation of 84 m below sea level, the Salton Sea measures some 48 km in length and 15 km across its greatest width. Today this closed, saline basin is maintained primarily by an influx of agricultural and industrial tailwater. Setmire et al. (1993) estimated over one million acre-feet of water to enter the Salton Sea annually through an extensive system of drains that either terminate directly into the sea or flow into it via the Alamo and New rivers. The Whitewater River at the north end similarly directs agricultural waste water and storm runoff from the Coachella Valley into the sea. Several minor natural drainages that provide relatively fresh seasonal flows to the basin are San Felipe Creek and Wash along the western perimeter and Salt Creek along the eastern shore. Maximum sea surface elevations occur in spring, while minimum elevations occur in the fall. During the last decade, the mean sea elevation has been 69.2–68.7 m below sea level (Imperial Irrigation District). Hagar and Garcia (1988)

reported maximum salinity levels for the Salton Sea to be about 44 parts per thousand; water near river mouths is fresher. Sea surface temperatures may consistently exceed 30° C from spring through fall (Carpelan 1961). Frequently following hot, windless days in summer, the oxygen in the water is depleted, periodically killing fish. The Imperial Valley receives virtually no rainfall in summer and minimal cloud cover (Ermak et al. 1976). Daily ambient temperatures commonly exceed 40° C throughout the nesting season, thus characterizing the Salton Sea as one of the harshest environments in which waterbirds nest (Grant 1982).

To determine nesting phenology and reproductive success, I surveyed traditional and other suitable breeding sites for evidence of nesting at weekly intervals beginning in mid-March of each year. I observed colonies from a distance until I believed incubation was well advanced. During visits to the colony, I marked nests individually, as encountered, with a section of PVC tubing 10–15 cm long and a numbered plastic tag. Nest contents and their condition were recorded on each visit. To minimize colony disturbance and

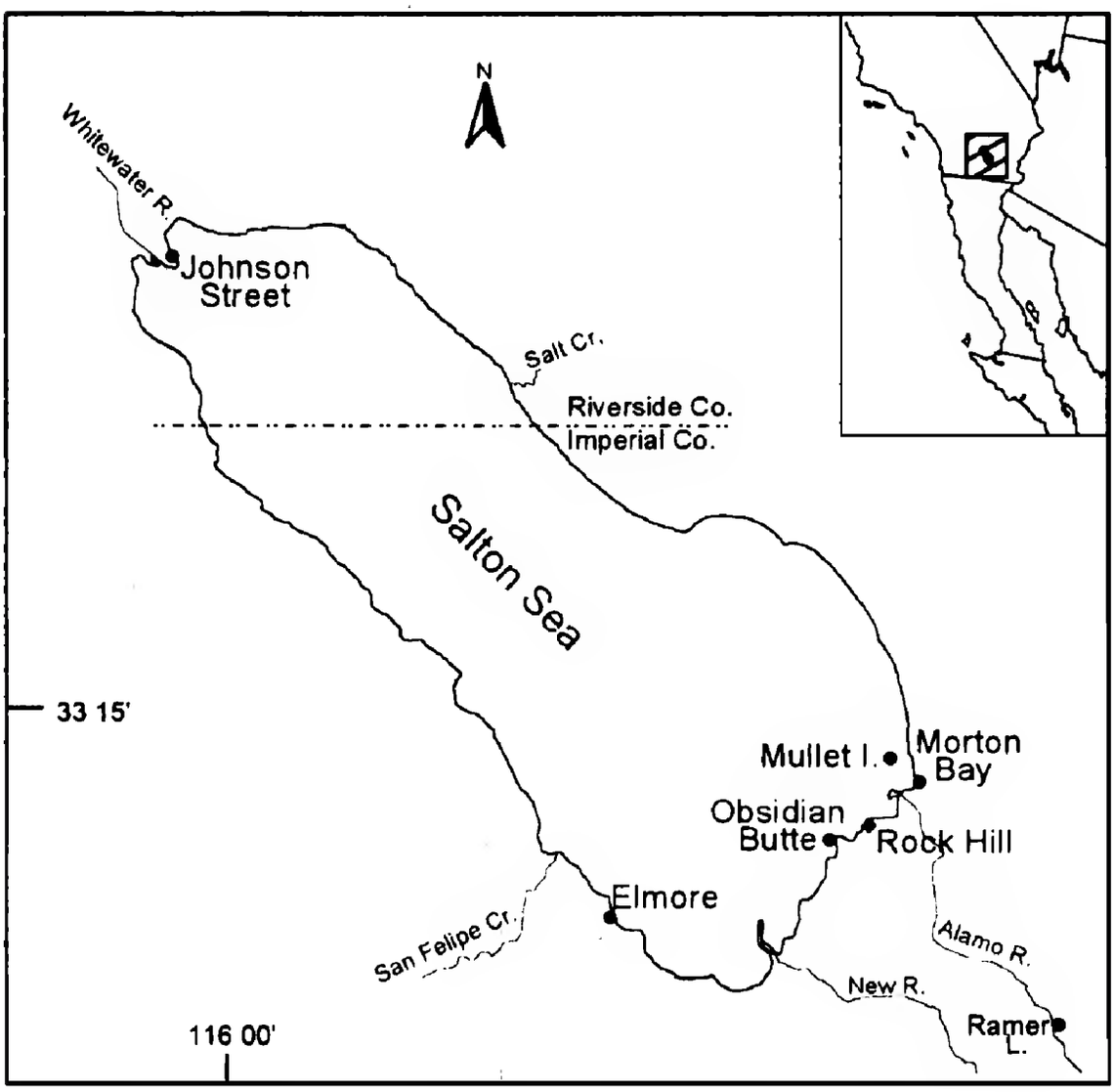

Figure 1. Black Skimmer nesting localities around the Salton Sea.

possible abandonment, I visited colonies at weekly or near-weekly intervals. Because all colonies (except at Rock Hill) are on private lands, and mammalian predators including skunks (*Mephitis mephitis*), coyotes (*Canis latrans*), raccoons (*Procyon lotor*), and feral cats (*Felis catus*) are abundant, I refrained from isolating nests within enclosures. Mean clutch sizes for each year were compared by means of a Kruskal–Wallis test. Single-egg clutches were excluded from these analyses as they were likely incomplete. A clutch was considered successful when at least one egg hatched. Hatching was determined on subsequent visits by the presence of young and relatively immobile chicks and a corresponding reduction in clutch size. This cautious approach contributed to the large number of nests of unknown fate in all years. Beginning in 1993, I marked young with U.S. Fish and Wildlife Service stainless steel bands and Darvik plastic color bands to distinguish annual cohorts.

RESULTS

Colony Sites and Utilization

Skimmers have established colonies at both the north and south ends of the sea. Although they are known to have nested at other more ephemeral or poorly defined sites, they used seven locations (Figure 1) from 1991 to 1995. With the exception of Mullet Island, all sites are less than 1000 m^2 in area. Except where otherwise noted, skimmers have nested at all sites since the initiation of this study.

The Johnson Street site, near the Whitewater River mouth, consists of two parallel and two perpendicular remnants of earthen levees, isolated from the shoreline by rising sea surface elevation. The skimmers here usually nest on compacted earth at the levee plateaus, which rise several meters above sea level. The height of these plateaus affords protection against wind-generated wave action and inundation of nests. Mullet Island (Figure 2), with relatively high relief and large areas for nesting, lies 2.5 km north of the Alamo River mouth. Skimmers use the bare earthen slopes and terraces. Nests are placed upslope from barnacle beaches at 3–4 m from the water's edge. Morton Bay is an eroded impoundment near the Alamo River. The substrates of both of its low-lying nesting islets consist of highly silty clay soils. A nearly continuous perimeter levee provides some protection from wave action and inundation of the colony site. Near Rock Hill, a series of small flat earthen islets within a freshwater impoundment was first available for nesting in 1995. Located within the Salton Sea National Wildlife Refuge, Rock Hill is the only colony site under active management (control of water level and protection from disturbance). Adjacent to Obsidian Butte is a low-lying nearshore site consisting of a rocky perimeter and an interior nesting beach composed of crushed barnacle. This islet is often completely inundated during high winds. Ramer Lake, a California Department of Fish and Game recreation area, lies 5 km southeast of the Salton Sea shoreline and adjacent to the Alamo River. Here, skimmers nest on small man-made

Figure 2. Aerial view of Mullet Island. Alamo River mouth in background.

Photo by Kathy Molina

Figure 3. Black Skimmer nesting habitat near Elmore Ranch on western shoreline, Salton Sea, 1992.

Photo by Kimball Garrett

compacted earth islets. They first colonized Ramer Lake in 1995, although these islets had been formed three years earlier. The potential for the colony to be disturbed is high owing to heavy levels of recreational use. The colony at Elmore Ranch (Figure 3), on the southwest shore of the sea, lies on a single earthen levee remnant that is highly susceptible to wave action, erosion, and inundation.

To examine site fidelity, I report the pattern of colony occupation for 1991 through 1995. Black Skimmers did not use any single site continuously throughout the study period. Johnson Street and Morton Bay had the highest rates of occupation (Figure 4). The Ramer Lake and Rock Hill sites are omitted from Figure 4 because the former site's population was small and because the latter was available only one year. Successful colony sites, those that did not experience widespread desertions or nest failures, were reused the following year 82% of the time. Failed colony sites were still reoccupied in the following year 33% of the time.

During the same 5-year period, the sites of earliest nesting were also inconsistent (Figure 4). The novel Rock Hill site was occupied immediately after the creation of nesting islets in 1995. Rates of earliest occupation are distributed almost evenly among three of the five sites, suggesting low site fidelity.

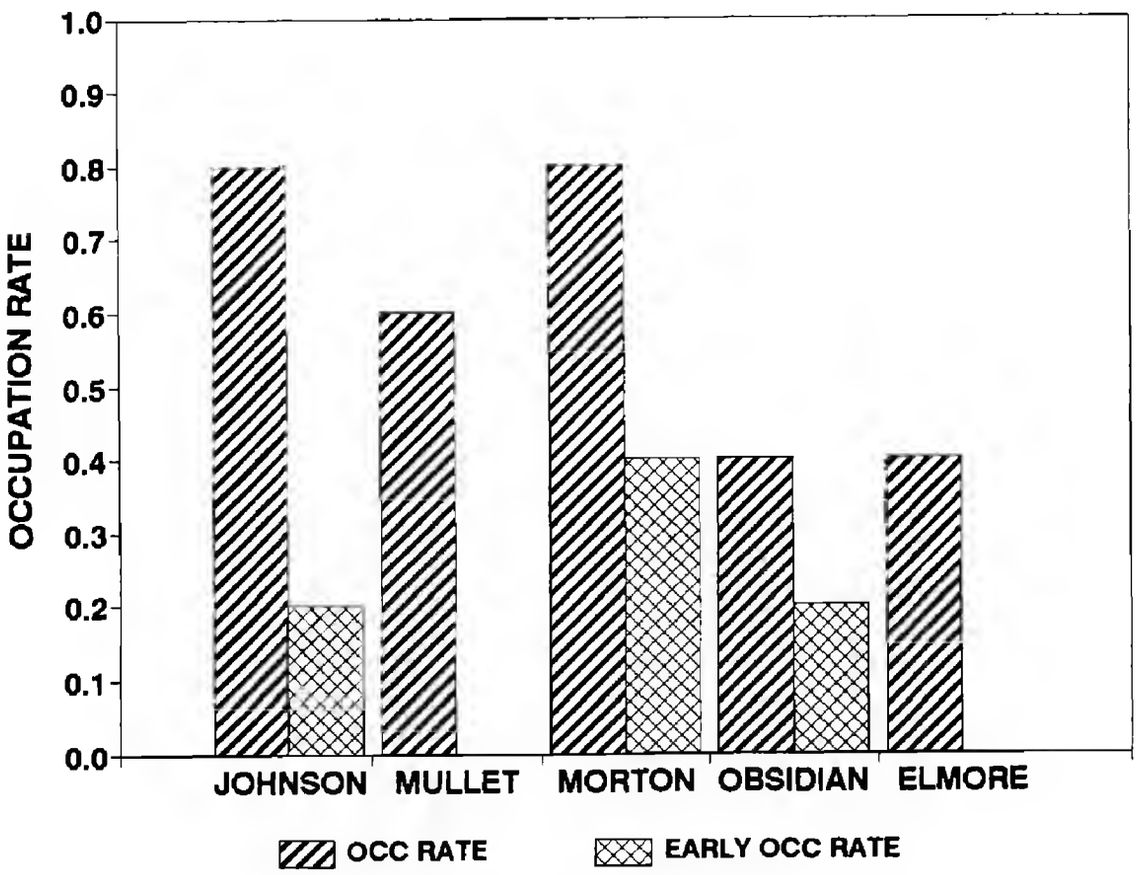

Figure 4. Occupation rates (diagonal bars) and rates of earliest occupation (hatched bars) for five long-standing Black Skimmer nesting sites around the Salton Sea, 1991–1995. Excludes Ramer Lake and Rock Hill sites.

Population Size

McCaskie and Suffel (1971) first described the appearance of Black Skimmers at the Salton Sea in the summer of 1968; the nesting of five pairs was documented in 1972 (McCaskie et al. 1974). Based on data published in *American Birds* and from this study, the trend in breeding population size over the last 23 years (Figure 5) is a dynamic one. Peak numbers of pairs occurred in 1987 and again in 1995. Although skimmers nested in 1979, an estimate of the number of pairs is not available. Black Skimmers were thought not to be breeding at the Salton Sea from 1980 to 1984.

Phenology

Black Skimmers begin arriving at the Salton Sea in early to mid-April, with 3 April being the earliest arrival date during this study period; numbers increase through June. Skimmers form loose aggregations and often roost at locations that later serve as nesting sites. Colony sizes range from 10 to several hundred pairs; colonies consisting of 50-200 pairs are most common. With few exceptions, Black Skimmers nested near nesting Gull-billed (*Sterna nilotica*) and/or Caspian terns (*S. caspia*).

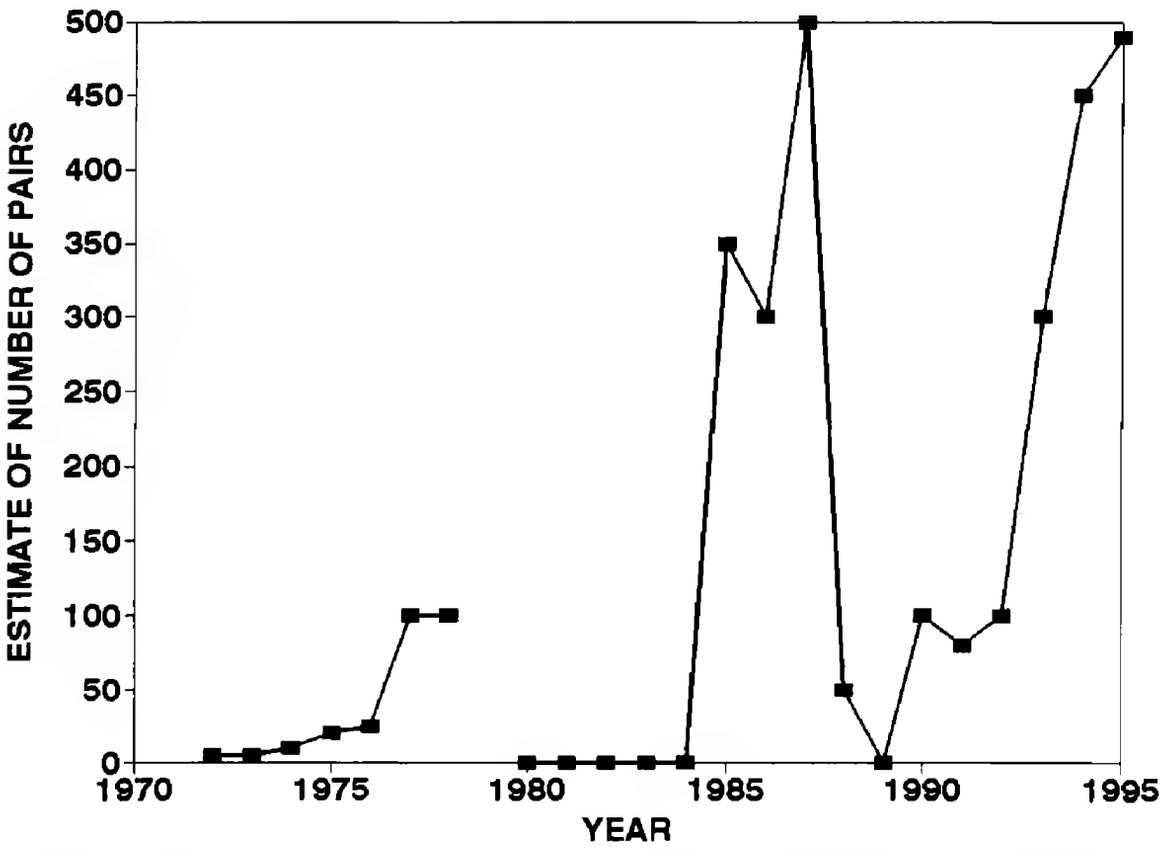

Figure 5. Trend in the number of breeding pairs of the Black Skimmer at the Salton Sea, 1972–1995, based on data from *American Birds* and the present study. Skimmers were present at the Salton Sea in 1979 and probably nested, but an estimate of the number of pairs is not available. Skimmers were scarce from 1980 to 1984 and in 1989 and were believed not to be breeding in those years.

Although egg-laying generally commences in late May and continues through late August (Figure 6), a well-defined peak of nest initiation extends from late June and late July. Every year, there has been a small wave of nest initiations in September, suggesting renesting attempts of adults or perhaps first attempts of younger birds.

Hatching commences in mid-June and continues through early September with a peak in late July and August. Fledging first occurs by late July or early August and continues through October. Nesting sites frequently serve as post-breeding roosts until adults and young begin dispersing to wintering grounds in September and October. Reports of Black Skimmers from the Salton Sea in winter are few; however, observations of several juveniles in late December and of birds in early March suggest that some skimmers overwintered in 1995–1996 along with an unusually large number of Brown Pelicans (*Pelecanus occidentalis*), perhaps in response to abundant food supplies.

Reproductive Parameters

The mean clutch size for Salton Sea skimmers (Table 1) ranged from 2.97 eggs in 1994 to 3.29 eggs in 1995. Mean clutch size was significantly lower in 1994 than in 1993 and 1995 (Kruskal–Wallis, $p < 0.001$).

To determine hatching success (Table 2), I monitored the outcome of over 200 nests each year from 1993 to 1995. The proportion of nests with

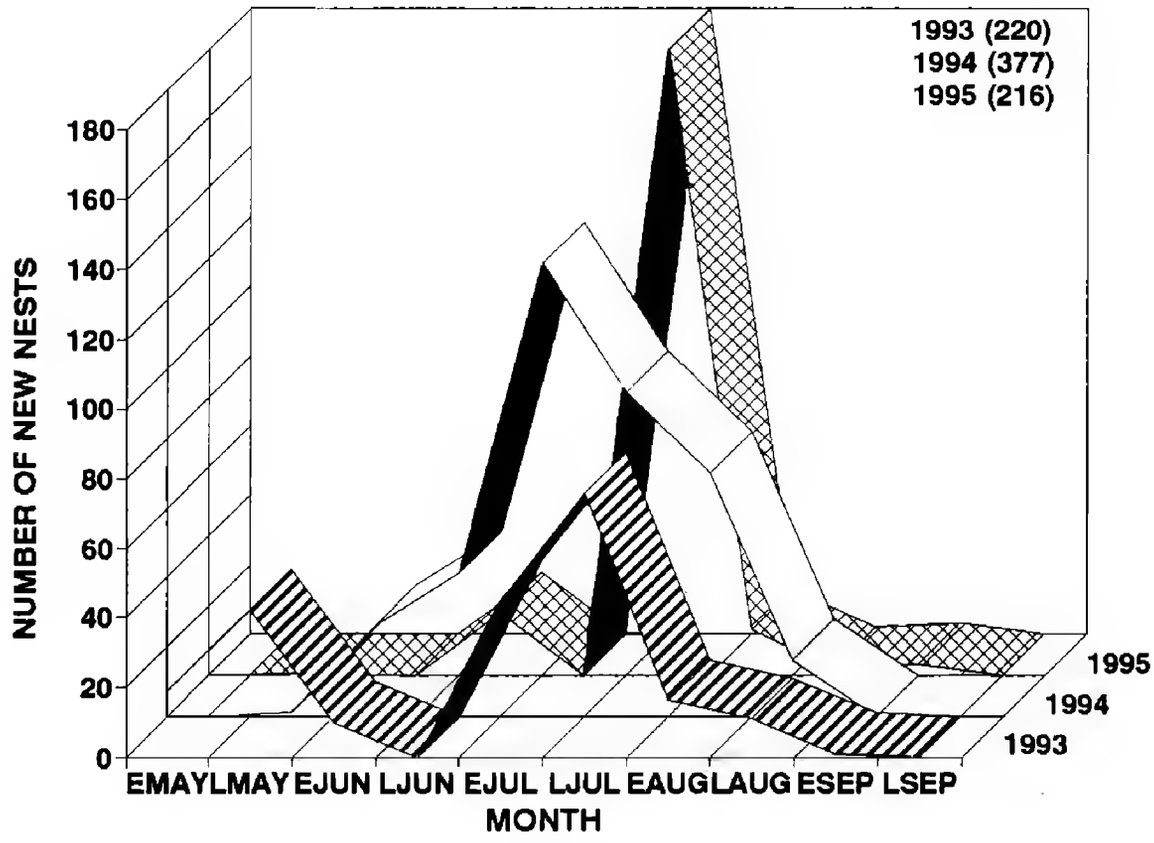

Figure 6. Pattern of Black Skimmer nest initiation at the Salton Sea, 1993–1995. See text for methods. Sample sizes for each year in parentheses upper right.

Table 1 Clutch sizes of Black Skimmers Nesting at the Salton Sea, 1993–1995

	1993	1994	1995[a]
Mean	3.15	2.97[b]	3.29
Standard deviation	0.64	0.65	0.65
Range	2–4	2–5	2–6
Sample size	209	354	185

[a]Ramer Lake colony excluded since first visited after hatching.

[b]Mean differs from all others, $p < 0.001$, Kruskal–Wallis.

known fate among the total nests monitored ranged from 56% to 76%. The number of successful nests reported, therefore, is a minimum value. The hatching success for nests of known fate was highly variable from year to year, ranging from 27% in 1994 to 71% in 1993.

In 1993 and 1994 large colonies at Morton Bay experienced complete hatching failures despite continual attendance of nests throughout the season. A large proportion of clutches were found cemented to the bottom of the bare scrape. Here the substrate consisted of silty clay and many embedded eggs also had dents and cracks. My attempts to dislodge clutches often resulted in damage to the eggs. In 1995 Johnson Street also experienced a widespread nesting failure. This failure differed from the failures at Morton Bay in that eggs remained movable within the scrape and exhibited little cracking or denting.

Since 1993, 622 young Black Skimmers have been banded at the Salton Sea. With constant effort over the last three seasons, I banded 228 young in 1993, 90 in 1994, and 304 in 1995. Quantitative information on annual fledging success is limited.

Since 1993 I have observed a few juveniles with defective wing development characterized by loss of primary feather shaft integrity and by a possible rotation of the wrist joint (Figure 7). I estimated this condition to occur in 1–2% of the banded juveniles annually.

Table 2 Measures of Black Skimmer Hatching Success at the Salton Sea, 1993–1995

	1993	1994	1995
Total nests monitored	219	377	225
Nests of known fate (% of total)	139 (63%)	211 (56%)	171 (76%)
Successful nests	99	57	113
Failed nests	40	140	58
Percent success	71%	27%	66%

Figure 7. Black Skimmer near fledging age with feather/wing deformity (at right) at Obsidian Butte, 1994.

Photo by Kimball Garrett

DISCUSSION

The variation in nest-site fidelity of Salton Sea Black Skimmers is characteristic of populations nesting in dynamic environments (Burger 1982). Fluctuating sea levels may affect low-lying sites near shore, by either inundation or by enhancing connectivity to the mainland (and increasing susceptibility to predation) during a drop in sea level. Morton Bay and Obsidian Butte were not used in 1995, a year when the level reached a 20-year maximum. Levees protecting the low-lying islets of Morton Bay were breached early in the season, and the nesting beaches of Obsidian Butte were inundated by wind-generated wave action through most of the nesting season.

The immediate colonization of novel nesting sites and the subsequent reoccupation of some previously unsuccessful sites suggests that optimal nesting habitat is limited at the Salton Sea. Black Skimmers formed a large colony of some 400 pairs at the Rock Hill impoundments in Salton Sea National Wildlife Refuge for the first time in 1995. Colonization of Rock Hill is significant in that it is the only site actively managed for colonial ground-nesting birds. Also in 1995, skimmers established a small colony of about 10 pairs at Ramer Lake, a popular recreation area managed by the California

Department of Fish and Game; it is the first documented colony of Black Skimmers nesting away from the Salton Sea's perimeter.

Because estimates of population size since the early 1970s have been generated primarily from casual observations rather than from focused censuses, one may ask whether these numbers accurately reflect the true population. Several factors may explain this pattern of fluctuating population size at the Salton Sea. A graph of sea level versus the skimmer population (Figure 8) suggests an inverse relationship between these two variables during the late 1970s and early 1980s. The rapid and constant rise in sea level may have rendered many existing low-lying sites unsuitable for nesting. During the increase of sea level in the 1990s, however, the relationship between the two variables was positive. This change may be explained by a decrease in disturbance from recreational fishing and a resultant shift to novel nesting habitat. Red Hill Marina is the single most important boat launching ramp at the south end of the Salton Sea and is only 3 km from Mullet Island. Colonization of Mullet Island by larids was not documented until 1992, although the island has been continuously isolated since at least the early 1950s. Local folklore describes Mullet Island as an anchorage popular with fishermen. A comparison of the marina's activity from 1987 through 1994 (Figure 9) and the population of nesting skimmers demonstrates an inverse relationship between population size and the

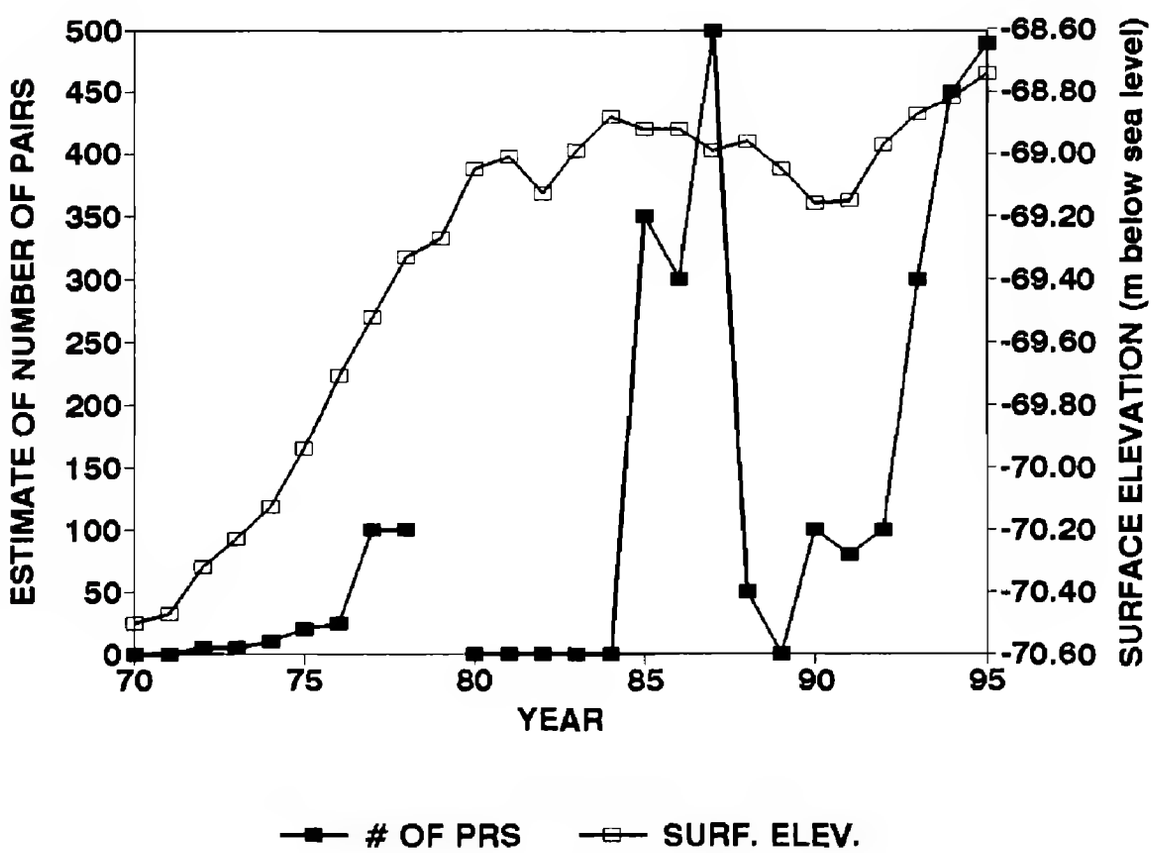

Figure 8. Number of breeding pairs of the Black Skimmer (filled squares) and Salton Sea surface elevation in June (open squares), 1972–1995. Sea-surface elevation data from Imperial Irrigation District.

number of boat launches. The popularity of the sportfishery peaked in 1988, declined precipitiously the following year, and has continued to decline since. The diminished sportfishery, resulting in decreased levels of disturbance at or near Mullet Island, suggests a plausible explanation for the skimmers' increase despite rising sea level.

The nesting schedule of Salton Sea skimmers is similar to that reported for coastal California (Schew and Collins 1991) and for some Gulf of Mexico and Atlantic coast populations (Stewart and Robbins 1958; Portnoy 1977) but differs markedly from peak nest initiation periods of late April and May observed in Virginia (Erwin 1977) and in south Texas (Custer and Mitchell 1987).

The mean clutch sizes I observed are similar to those reported earlier for this population (Grant and Hogg 1976) and to those reported from coastal California (Stadtlander 1994) but slightly lower than those reported for Gulf of Mexico populations (Custer and Mitchell 1987).

Reports of hatching success among North American Black Skimmer populations are highly variable (Gochfeld and Burger 1994). The low mean clutch size coupled with low hatching success and lowered abundance of young for banding indicate that 1994 was a highly anomalous year. The poor reproductive output in 1994 may imply a prolonged period of poor

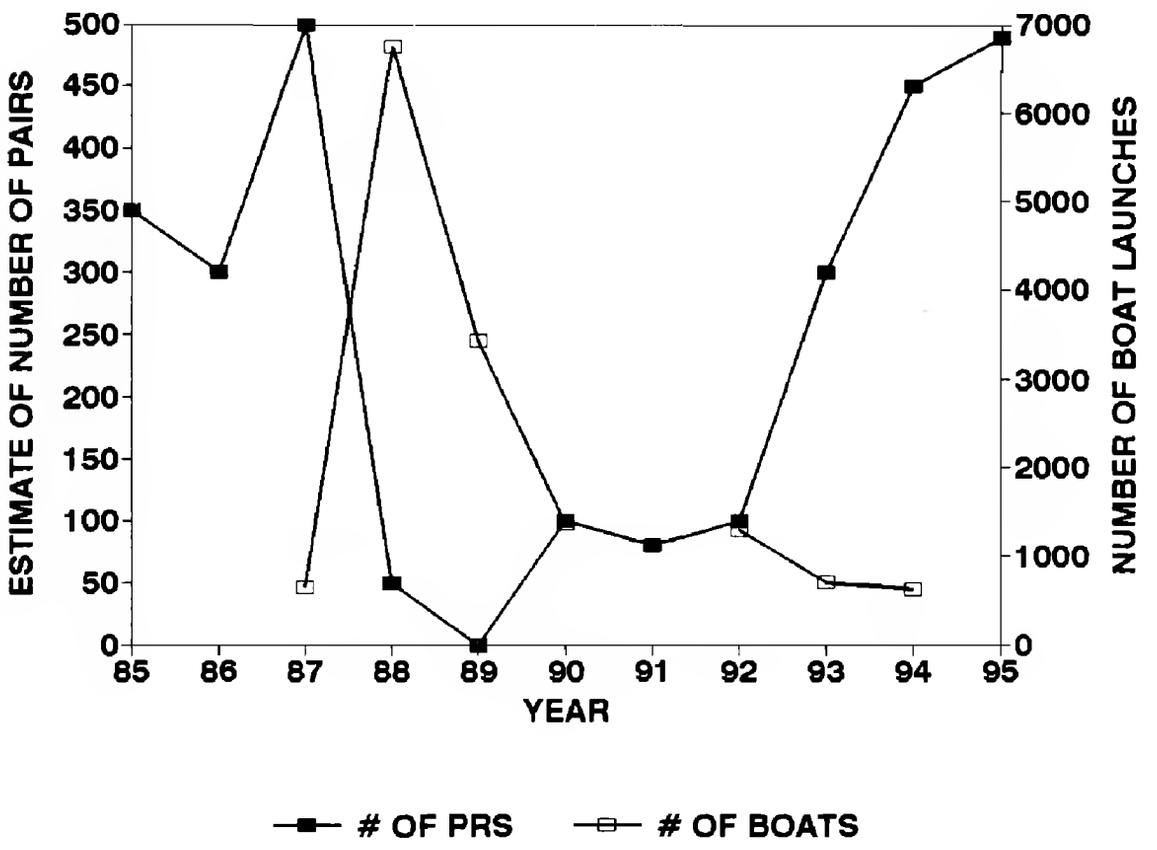

Figure 9. Number of breeding pairs of the Black Skimmer (filled squares) and number of boats using the Red Hill Marina boat ramp (open squares), 1987–1995. Number of boat launchings not available for 1991. Based on data from Imperial County Department of Recreation.

food availability; however, the role of contaminant-induced reproductive depression, operating just below threshold levels, is still unclear and can not be ruled out.

Quantitative information on the foraging behavior and diet of Black Skimmers at the Salton Sea is lacking. The Salton Sea fishery is a simple one, with marine game species, the Orangemouth Corvina (*Cynoscion xanthulus*), Sargo (*Anisostremus davidsonii*) and Bairdiella (*Bairdiella icistia*) initially stocked. Tilapia (*Tilapia* sp.) have since been introduced into irrigation ditches (Setmire et al. 1993) and are abundant inshore. Small tilapia are often observed dropped at nests. These and small Bairdiella are occasionally regurgitated by chicks during handling. The comprehensive investigation of the biota of the Salton Sea during the 1950s by Walker et al. (1961) is now somewhat outdated, and few recent studies of the Salton Sea fishery have been published. Matsui et al. (1992) recently examined the reproduction of Bairdiella in the Salton Sea and reported abnormal embryonic development in addition to reproductive decline. The relationship of developmental deformities and diminished reproduction to factors of salinity, temperature, and contaminants is unclear. Fewer and smaller corvina, a highly prized game species, are currently being caught by fishermen. Diminished public use since 1990 suggests that the vitality of the sportfishery has declined significantly.

The large-scale failures observed at Morton Bay in 1993 and 1994 may be related to the apparent immobilization of eggs within the bare nest scrape, possibly preventing proper embryonic development. Grant (1978) has previously described the behavior of foot and belly soaking by Black Skimmers and Gull-billed Terns nesting at the Salton Sea. By cementing the eggs to the ground, this behavior adaptive to heat stress and the transport of moisture to the nest and eggs may actually be detrimental to reproductive success when the birds nest on substrates like that at Morton Bay. Gull-billed Terns have nested successfully at this site during most years of this study. Because Gull-billed Tern nests are lined with flotsam and debris, their clutches have been unaffected by the stickiness of these clay soils when moistened. Immobilization of clutches, as well as eggshell weakening and other contaminant-induced reproductive impairment, may have contributed to these large scale failures.

Setmire et al. (1993) reported elevated levels in DDE and selenium in some Salton Sea biota, and Platter (1976) reported significant eggshell thinning for the Snowy (*Egretta thula*) and Cattle Egrets (*Bubulcus ibis*) nesting there. Preliminary analyses of eggshell quality (unpubl. data) for Salton Sea Black Skimmers are difficult to interpret because pre-DDT clutches from California do not exist. Comparisons of Black Skimmer clutches over a wide geographic range within North America before and after the ban on DDT do not demonstrate consistent thinning (White et al. 1984, Blus and Stafford 1980, King et al. 1991). Some studies of Black Skimmers in Texas during the late 1970s and 1980s (White et al. 1984, King et al. 1991) reported decreases in eggshell thickness but demonstrated no significant relationship between residue levels and eggshell quality and reproductive success. The results of studies examining the relationship of contaminants, eggshell thinning, and reproductive success in other larid

species are also mixed. Fox (1976) demonstrated eggshell thinning and a correlation with DDE levels in Common Terns (*Sterna hirundo*) in Alberta, Canada, in addition to differences in amino acid composition and pore area between the shells of eggs that hatched and of those that failed to hatch. Ohlendorf et al. (1985) documented eggshell thinning for Caspian Terns in San Diego but found no clear relationship between eggshell thickness and DDE residues. Fox (1976) reported intra-clutch variation in eggshell thicknesses due to laying sequence and suggested that this natural variation may mask any contaminant-induced variability. Future investigation may help resolve geographic trends and response to contaminants.

Several studies of east-coast tern populations (Gochfeld 1971, Hays and Risebrough 1972) reported feather deformities during the early 1970s at rates similar to that observed in Black Skimmers from the Salton Sea and coastal California (C. T. Collins pers. comm.). Polychlorinated biphenyls, chlorinated dioxins, and heavy metals have been implicated in these studies. Curiously, I have rarely recovered dead chicks near fledging age with this condition. Hays and Risebrough (1972) and my own observations suggest new feather growth after subsequent handling of some affected birds. If parents continue to provision these juveniles, the damaged primaries may be replaced and ultimately fledging may proceed. Continued surveillance, however, is warranted.

Little information is available on the dispersal and wintering patterns of the Salton Sea breeding population of Black Skimmers. The current presumption is that most of this population moves south through the Gulf of California and winters in western Mexico. Gazanniga's (1995, 1996) study of the wintering behavior of resident California coastal populations suggests that Salton Sea birds are generally absent from coastal wintering flocks. However, banded Salton Sea skimmers are rarely but regularly observed along the coast. Such observations were usually made in late winter or early spring and involved birds in their first or second winter. Studies of east-coast Black Skimmers (Gochfeld and Burger 1994) suggest that few first-year birds return to natal colonies. During casual observations at one Salton Sea colony, 5 of 72 (7%) banded young of the year were resighted the following year.

SUMMARY

Black Skimmers nesting at the Salton Sea now form one of the largest nesting populations in western North America, numbering nearly 500 pairs in 1995. This unique inland population varies widely in population size, habitat availability, and reproductive success. Nesting in one of the harshest environments in North America, it may be subject to enormous physiological stress. The increasing salinity and pollutant levels of the Salton Sea also contribute to the uncertain future of these and other piscivorous birds residing there. These baseline demographic data and a maturing banded population provide the foundation upon which more detailed studies of the ecology and physiology of this interesting population of Black Skimmers can be based.

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LITERATURE CITED

American Ornithologists' Union. 1983. Check-list of North American birds, 6th ed. Am. Ornithol. Union, Lawrence, KS.

Blus, L. J., and Stafford, C. J. 1980. Breeding biology and relations of pollutants to Black Skimmers and Gull-billed Terns in South Carolina. U.S. Fish & Wildlife Serv. Spec. Sci. Rep.—Wildlife 230.

Burger, J. A. 1982. The role of reproductive success in colony site selection and abandonment in Black Skimmers (*Rynchops niger*). Auk 99: 109–115.

Burger, J. A. 1992. Heavy metal and selenium concentrations in Black Skimmers (*Rynchops niger*): Gender differences. Arch. Environ. Contam. Toxicol. 23:431–434.

Burger, J. A., and Gochfeld, M. 1990. The Black Skimmer: Social dynamics of a colonial species. Columbia Univ. Press, New York.

Carpelan, L. H. 1961. Physical and chemical characteristics of the Salton Sea, in The Ecology of the Salton Sea, California, in relation to the sportfishery (B. Walker, ed.), pp 17–32. Calif. Dept. Fish & Game Fish Bull. 113.

Collins, C. T., and Garrett, K. L. 1996. The Black Skimmer in California: An overview. W. Birds 27:127–135.

Custer, T. W., and Mitchell, C. A. 1987. Organochlorine contaminants and reproductive success of Black Skimmers in South Texas, 1984. J. Field Ornithol. 58:480–489.

Ermak, D., Buchanan, M., and Layton, D. 1976. Land and air resources, in A description of Imperial Valley, California, for the assessment of impacts of geothermal energy development (D. Layton and D. Ermak, eds.), pp. 7–21. Lawrence Livermore Lab UCRL-52121, Univ. Calif., Livermore.

Erwin, R. M. 1977. Black Skimmer breeding ecology and behavior. Auk 94:709–717.

Erwin, R. M. 1979. Species interactions in a mixed colony of Common Terns (*Sterna hirundo*) and Black Skimmers (*Rynchops niger*). Animal Behavior 27:1054–1062.

Fox, G. 1976. Eggshell quality: Its ecological and physiological significance in a DDE-contaminated common tern population. Wilson Bull. 88:459–477.

Gazzaniga, K. 1995. Distribution and dispersal of Black Skimmers (*Rynchops niger*) in southern California. M. S. thesis, Calif. State Univ., Long Beach.

Gazzaniga, K. 1996. Overwintering of Black Skimmers in California: Site fidelity and inter-site movements. W. Birds 27:136–142.

Grant, G., and Hogg, N. 1976. Behavior of late-nesting Black Skimmers at Salton Sea, California. W. Birds 7:73–80.

Grant, G. S. 1978. Foot-wetting and belly-soaking by incubating Gull-billed Terns and Black Skimmers. J. Bombay Nat. Hist. Soc. 75:148–152.

Grant, G. S. 1982. Avian incubation: Egg temperature, nest humidity, and behavioral thermoregulation in a hot environment. Am. Ornithol. Union, Washington, D.C.

Gochfeld, M. 1971. Premature feather loss: A new disease of terns on Long Island, N. Y. Kingbird 21:206–211.

Gochfeld, M., and Burger, J. 1994. Black Skimmer (*Rynchops niger*), in The Birds of North America, No. 108 (A. Poole and F. Gill, eds.), Acad. Nat. Sci., Philadelphia.

Hagar, J., and Garcia, J. 1988. A review of the potential biological response to salinity changes in the Salton Sea. Biosystems Analysis, Sausalito, CA.

Hays, H., and Risebrough, R. Pollutant concentrations in abnormal young terns from Long Island Sound. Auk 89:19–35.

King, K. 1989. Food habits and organochlorine contaminants in the diet of Black Skimmers, Galveston Bay, Texas. Colonial Waterbirds 12:109–112.

King, K., Custer, T., and Quinn, J. 1991. Effects of mercury, selenium, and organochlorine contaminants on reproduction of Forster's Terns and Black Skimmers nesting in a contaminated Texas Bay. Arch. Environ. Contam. Toxicol. 21:32–40.

Layne, V., Richmond, R., and Metropulos, P. 1996. First nesting of Black Skimmers on San Francisco Bay. W. Birds 27:159–162.

Loftin, R. W. 1982. Diet of Black Skimmers and Royal Terns in northeast Florida. Fla. Field Nat. 10:19–20.

Matsui, M., Hose, J., Garrahan, P., and Jordan, G. A. 1992. Developmental effects in fish embryos from Salton Sea, California. Bull. Contam. Toxicol. 48:914–920.

McCaskie, G., and Suffel, S. 1971. Black Skimmers at the Salton Sea, California. Calif. Birds 2:69–71.

McCaskie, G., Liston, S., and Rapley, W. 1974. First nesting of Black Skimmer in California. Condor 76:337–338.

Ohlendorf, H. M., Schaffner, F. C., Custer, T. W., and Stafford, C. J. 1985. Reproduction and organochlorine contaminants in terns at San Diego Bay. Colonial Waterbirds 8:42–53.

Platter, M. 1976. Breeding ecology of Cattle Egrets and Snowy Egrets at the Salton Sea, southern California. M. S. thesis, San Diego State Univ.

Portnoy, J. W. 1977. Nesting colonies of seabirds and wading birds—coastal Louisiana, Mississippi, and Alabama. U. S. Fish & Wildlife Serv., Biol. Serv., FWS/OBS 77/07, Washington, D. C.

Quinn, J. 1989. Black Skimmer parental defense against chick predation by gulls. Animal Behavior 38:534–541.

Quinn, J. 1990. Sexual size dimorphism and parental care patterns in a monomorphic and a dimorphic larid. Auk 107:260–274.

Schew, W. A., and Collins, C. T. 1990. Age and sex determination in Black Skimmer chicks. J. Field Ornithol. 61:174–179.

Schew, W. A., and Collins, C. T. 1991. Annual and within-year variability in growth patterns of Black Skimmer (*Rynchops niger*) chicks. Proc. Int. Symp. Mar. Biol. 8:87–94.

Setmire, J. G., Schroeder, R., Densmore, Goodbred, S., Audet, D., and Radke, W. 1990. Detailed study of water quality, bottom sediment, and biota associated with irrigation drainage in the Salton Sea area, California, 1988-90. U. S. Geological Survey, Water Res. Investi. Rept 93-4014

Stadtlander, D. 1994. Colonial seabirds and the Western Snowy Plover nesting in south San Diego Bay 1993. Bay and Estuary Program, U. S. Fish & Wildlife Service, 2730 Loker Ave. W., Carlsbad, CA 92008.

Stewart, R. E., and Robbins, C. S. 1958. Birds of Maryland and the District of Columbia. N. Am. Fauna 62:1–401.

Walker, B., Whitney, R., and Barlow, G. 1961. The fishes of the Salton Sea, in The ecology of the Salton Sea in relation to the sportfishery (B. Walker, ed.), pp. 77–92. Calif. Dept. Fish & Game Fish Bull. 113.

White, D., Mitchell, C., and Swineford, D. 1984. Reproductive success of Black Skimmers in Texas relative to environment pollutants. J. Field Ornithol. 55:18–30.

Yee, D. G., Bailey, S. F., and Singer, D. 1995b. The summer season. Middle Pacific Coast region. Natl. Audubon Soc. Field Notes 49:975–979.

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NOTES

FIRST NESTING OF BLACK SKIMMERS ON SAN FRANCISCO BAY

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Black Skimmers (*Rynchops niger*) have been observed on south San Francisco Bay during the nesting season since the late 1970s (Bailey et al. 1992, LeValley and Evens 1982, San Francisco Bay Bird Observatory unpubl. data, Winter and Manolis 1978, Yee et al. 1992), but nesting was never documented. They have nested in southern California since 1972, when five nests were discovered at the Salton Sea (McCaskie et al. 1974). The northernmost previously recorded nesting of the Black Skimmer in California was inland, at the Tulare Lake Basin in Kings County during the summer of 1986 (Erickson et al. 1986).

On 3 June 1994, we found two separate pairs of Black Skimmers on south San Francisco Bay. Layne found one pair roosting in a Forster's Tern (*Sterna forsteri*) nesting colony in Santa Clara County, and Richmond found the other pair making a nest scrape in a Forster's Tern nesting colony in Alameda County.

The Santa Clara County tern colony was on a dredge-spoil island in a salt evaporation pond on the San Francisco Bay National Wildlife Refuge. The nest island was sparsely vegetated, with approximately 45% cover. The dominant plant species was pickleweed (*Salicornia virginica*); there were also scattered patches of ice plant (*Mesembryanthemum nodiflorum*), Alkali Heath (*Frankenia salina*), saltgrass (*Distichlis spicata*), and Curly Dock (*Rumex crispus*). Other bird species nesting on islands in this pond were the American Avocet (*Recurvirostra americana*), Black-necked Stilt (*Himantopus mexicanus*), Gadwall (*Anas strepera*), and California Gull (*Larus californicus*). The female skimmer was once seen foraging on a nearby salt pond approximately 0.5 km from the nest island.

On 19 June the skimmers appeared to be incubating eggs. The nest scrape was on the southeast side of the island, sheltered from the prevailing northwest winds. On 6 July there were three downy young; five days later a fourth chick was seen. The number of chicks dwindled to one by 5 August. On 17 August, the young skimmer fledged and by 19 August was observed making short flights between islands in the pond. Both adults and the fledgling were last observed on 23 August; by 24 August all had left the area.

In 1995, a pair of Black Skimmers nested on a dredge-spoil island in a salt evaporator approximately 1.5 km north of the pond used in 1994. Both adults were frequently observed foraging on this pond and in Charleston Slough. On 2 August, the first chick was visible; a second chick was seen on 5 August. No other chicks were observed. On 12 August 1995 we banded one chick from this nest site (Figure 1). A U. S. Fish and Wildlife Service band was placed on the left leg, and a white plastic color band with a black number was placed on the right leg. The banded chick was seen flying on 6 September; the other chick was not observed flying and shortly thereafter disappeared. Subsequently the two adults and single chick moved to Charleston Slough, where they remained until December. The last reported sighting at Charleston Slough was of one adult and one immature bird on 18 December 1995 (M. Rogers pers. comm.).

The Alameda County tern colony was on artificial islands in a series of man-made freshwater to brackish ponds at the East Bay Regional Park District's Hayward

Regional Shoreline. The skimmers nested on a sparsely vegetated island in a brackish pond. The dominant vegetation on this island was Spearscale (*Atriplex triangularis*). Other bird species nesting on islands in this pond were the Forster's Tern, Black-necked Stilt, American Avocet, Western Snowy Plover (*Charadrius alexandrinus nivosus*) and Killdeer (*Charadrius vociferus*). The adult skimmers were frequently seen foraging on a salt pond approximately 3 km from the nest island.

At Hayward, the skimmers continued scrape-making behavior through 8 June 1994. The final nest scrape was near the top of the island. On 9 June they appeared to be incubating eggs. They continued in the same way until 30 June, when the first chick was observed. On 2 July a second chick was seen, on 4 July a third, and on 7 July a fourth (Figure 2).

By 9 July the chicks had moved to a clump of Spearscale 1.5 to 3 m away from the nest scrape and were being fed whole fish. On 23 July only three chicks were present. An additional adult female Black Skimmer was on a nearby pond from this date until early August and was constantly harassed by the nesting pair. In the mid-afternoon on 31 July three chicks were evident, but several hours later only two could be seen. The missing chick was not seen later and may have fledged. On 2 August one of the other chicks fledged. It was seen through the next day but not later. The last chick fledged on 5 August. This fledgling and the pair of adults were last seen in the Baumberg salt ponds (just south of Hayward Regional Shoreline) on 26 August (L. Feeney pers. comm.).

In 1995, a pair of skimmers again nested at Hayward Regional Shoreline. On 26 May two pairs of adults were seen, one of the pairs occupying the approximate site of the 1994 nest scrape. On 10 June this pair was alone. The next day they moved

Figure 1. Valerie Layne preparing to band a Black Skimmer chick at the Santa Clara County nest site, August 1995.

Photo by Janet T. Hanson

Figure 2. Black Skimmers with four downy chicks on an island at Hayward Regional Shoreline, July 1994.

Photo by Phil Gordon

approximately 30 m northeast to another island where they began a new nest scrape. The first chick was seen on 9 July, a second chick was seen on 12 July, a third chick was seen on 14 July and a fourth chick was seen on 19 July. On 29 July only three chicks remained and all three were banded that night. On 8 August two of the chicks had fledged, the third fledged three days later. All five birds were last seen together on 28 August; one immature bird was seen on 4 September.

We believe the pair nesting at Hayward to be the same pair that used the site in 1994, as the male had a U. S. Fish and Wildlife Service band on its right leg. Black Skimmers have been banded at several nesting colonies in southern California in recent years (1988-1995). Those banded in south San Diego Bay were banded on the left leg; those banded at Bolsa Chica in Orange County have been banded on the right leg (C. Collins pers. comm.), possibly indicating the colony of origin.

Black Skimmer populations in southern California have increased greatly in the past five years (C. Collins pers. comm.), and this further northward expansion of the species' breeding range is perhaps not unexpected.

We gratefully acknowledge the San Francisco Bay National Wildlife Refuge, East Bay Regional Park District, the city of Mountain View, and Cargill Salt Division for permission to conduct these observations. We also thank Janet Hanson, Sue Macias, Howard Cogswell, Mark Taylor, and Mike Mammoser for assistance in the field. Special thanks are due Charles Collins and Howard Cogswell for reviewing the manuscript and making many invaluable comments and suggestions.

LITERATURE CITED

Bailey, S. F., Yee, D. G., and Deuel, B. E. 1992. The summer season. Middle Pacific Coast region. Am. Birds 46:1173–1176.

Erickson, R. A., Bailey, S. F., and Barron, A. D. 1986. The nesting season. Middle Pacific Coast region. Am. Birds 40:1248–1254.

LeValley, R., and Evens, J. 1982. The nesting season. Middle Pacific Coast region. Am. Birds 36:1011–1015.

McCaskie, G., Liston, S., and Rapley, W. A. 1974. First nesting of Black Skimmer in California. Condor 76:337–338.

Winter, J., and Manolis, T. 1978. The nesting season. Middle Pacific Coast region. Am. Birds 32:1203–1206.

Yee, D., Bailey, S. F., and Deuel, B. E. 1992. The autumn migration. Middle Pacific Coast region. Am. Birds 46:142–147.

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NIGHT FEEDING OF BLACK SKIMMERS AT ESTERO PUNTA BANDA, BAJA CALIFORNIA, MEXICO

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The Black Skimmer (*Rynchops niger*) feeds strictly in shallow inshore waters, alone or in small groups (Erwin 1977a). Its diet is narrow; in Virginia, silversides (*Menidia* spp.) and killifishes (*Fundulus* spp.) make up 90% of its prey (Erwin 1977b). Both its feeding method and efficiency have been reported (Irby 1951, Tomkins 1951, Zusi 1959), but until recently little was known about its nocturnal feeding behavior (Gochfeld and Burger 1994).

Black Skimmers have recently colonized southern California (McCaskie et al. 1974, Palacios and Alfaro 1992) and the Gulf of California (Massey and Palacios 1994). They are now not rare along the Baja California peninsular coast (Palacios and Alfaro 1992, Carmona et al. 1995).

We present here observations of night feeding of Black Skimmers in northwestern Baja California at Estero Punta Banda (31° 40′–31° 48′ N, 116° 34′–116° 40′ W), 13 km south of Ensenada, Baja California, México. On 19 January 1996 we caught six Black Skimmers (three at 20:00, one at 21:30, and two at 21:50) while netting Western Sandpipers (*Calidris mauri*). Captures were made during a new moon and a rising tide; high tide was 1.26 m at 20:49, with about a 40-minute lag between Punta Banda and the tide gauge at the port of Ensenada. We obtained from three birds a total of four Topsmelt (*Atherinops affinis*) (Rosales-Casián pers. comm.). One complete fish (length 17.1 cm) had to be extracted by hand from a gagging bird; three others were regurgitated and had no head but were otherwise undigested (partial lengths 9.5, 13.4, and 15.0 cm). These sizes are larger than most reported Black Skimmer prey (see Gochfeld and Burger 1994, Wilson 1995). Hamman and Rosales-Casián (1989) considered the Topsmelt to be a visitor to the estuary, entering at high tide and feeding at the mouth of the estuary, where the Black Skimmers were caught.

Up to 238 Black Skimmers have been recorded at Punta Banda and in the Ensenada area (October 1990), and banded birds from Bolsa Chica, Orange County, California, have been observed in the area (Palacios and Alfaro 1992). One Black Skimmer we captured had been banded as a chick on 19 July 1989 in San Diego, California (33° 40′ N, 118° 10′ W) (U.S. Fish and Wildlife Service band 634-54818). We counted 150 roosting Black Skimmers in the Estero Punta Banda on 13 January

1996. These birds appear to be a winter population that breeds, at least in part, in southern Upper California. Availability of the Black Skimmer's food is determined by tide level (Erwin 1977b, 1990). In Virginia, Erwin (1977b) found most skimmers feeding in marshes at low tide, and night feeding was thought possible (Erwin 1977b). At Punta Banda it is common to see them feeding during the day, mainly near low tide (Palacios and Alfaro 1992). Our observations show that Black Skimmers do feed at night and at high tide, possibly as a consequence of food availability. Feeding habits of Black Skimmers in Baja California in winter agree with the primarily nocturnal foraging recorded for breeding birds in southern California (Wilson 1995). Further studies of their diet and feeding efficiencies could help us further understand their success as a colonizing species in this area.

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LITERATURE CITED

Carmona, R., Fernández, G., Brabata, G., and Arvizu, E. 1995. Variación temporal en la abundancia del rayador, *Rynchops niger* (Charadriiformes: Laridae), en Baja California Sur, México. Rev. Biol. Trop. 43:313–315.

Erwin, R. M. 1977a. Foraging and breeding adaptations to different food regimes in three seabirds: the Common Tern, *Sterna hirundo*, Royal Tern, *Sterna maxima*, and Black Skimmer, *Rynchops niger*. Ecology 58:389–397.

Erwin, R. M. 1977b. Black Skimmer breeding ecology and behavior. Auk 94:709–717

Erwin, R. M. 1990. Feeding activities of Black Skimmers in Guyana. Colonial Waterbirds 13:70–71

Gochfeld, M., and Burger, J. 1994. Black Skimmer (*Rynchops niger*), in The Birds of North America, No. 108 (A. Poole and F. Gill, eds.). Acad. Nat. Sci., Philadelphia.

Hamman, G., and Rosales-Casián, J. A. 1989. Taxonomía y estructura de la comunidad de peces del estero Punta Banda y Bahia Todos Santos, Baja California, México, in Temas de Oceanografía Biológica en México (J. de la Rosa-Vélez and F. González-Farías, eds.), pp. 153–192. Univ. Autónoma Baja Calif., Ensenada.

Irby, D. L. 1951. Fishing efficiency of the Black Skimmer. Condor 53:259.

Massey, B. W., and Palacios, E. 1994. Avifauna of the wetlands of Baja California, México: Current status. Studies Avian Biol. 15:45–57

McCaskie, G., Liston, S., and Rapley, W. A. 1974. First nesting of Black Skimmer in California. Condor 76:337–338.

Palacios, E., and Alfaro, L. 1992. Occurrence of Black Skimmers in Baja California. W. Birds 23:173–176.

Tomkins, I. 1951. Method of feeding of the Black Skimmer. Auk 68:236–239

Wilson, J. F. 1995. Diel periodicity and dietary breadth in the Black Skimmer (*Rynchops niger*): Implications for coexistence in a mixed-species colony of breeding seabirds. Master's thesis, Calif. State Univ., Fullerton.

Zusi, R. L. 1959. Fishing rates in the Black Skimmer. Condor 61:298.

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ESTABLISHMENT OF A NEW BLACK SKIMMER BREEDING COLONY IN SOUTHERN CALIFORNIA

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Batiquitos Lagoon (33° 05′ N, 117° 17′ W) is a 241-hectare nontidal coastal wetland situated in northern San Diego County, California, within the city of Carlsbad, approximately 56 km north of San Diego and 145 km south of Los Angeles (Figure 1). The lagoon extends approximately 4 km inland from the Pacific Ocean and ranges in width from 0.2 to 0.4 km, with steep canyon slopes along the southern border and more gradual slopes to the north.

Over the last century, the coastal wetlands of northern San Diego County have been subjected to increased siltation and subsequent reduction of tidal action (Coastal Conservancy 1986, City of Carlsbad 1990, Appy 1991). In an attempt to reverse these detrimental effects, an enhancement plan is currently being implemented that will permanently open Batiquitos Lagoon to the Pacific Ocean through dredging and the stabilization of the inlet. The enhancement plan will ultimately create five nesting sites, totaling 13 hectares, designed to accommodate the Least Tern (*Sterna antillarum*) and the Snowy Plover (*Charadrius alexandrinus*). The first three nesting sites were created prior to the 1995 breeding season. During 1995, one of the nesting sites was colonized by 14 pairs of the Black Skimmer (*Rynchops niger*). Their nesting effort represents the first record of breeding by this species at Batiquitos Lagoon and in northern San Diego County.

The site where Black Skimmers nested at Batiquitos Lagoon, referred to as W-2 (Figure 1A), is in the west basin of the lagoon adjacent to Highway 101. Its construction began on 19 November 1994 and was completed by 5 December 1994. Approximately 45,900 m^3 of medium to coarse sand with shell fragments was dredged from the central basin of the lagoon and deposited at W-2, covering approximately 2 hectares. The plateau of the nesting site stands at +9.5 National Geodetic Vertical Datum (NGVD) with a gradual decrease in elevation from west to east. Fencing was installed along the north, south, and west sides of the site to restrict use by humans and help reduce predation.

Because of the sensitivity of Black Skimmers to human disturbance during the pre-laying, egg-laying, and early incubation phases (Safina and Burger 1983, Schew and Collins 1990), we observed from outside the colony until the initial nests were established. Subsequently, we checked nests within the colony three times a week for 15 minutes between 0800 and 1100 during August and September.

After the first observations at the lagoon on 20 April, the number of Black Skimmers increased from 18 individuals on 12 May to a high of 81 on 18 August. Following a large influx of 50–55 skimmers, nesting was initiated on 30 July and continued through 21 August. The incubation period for all nests extended from 30 July to 13 September, and hatching dates ranged from 22 August to 13 September. The first juvenile fledged on 25 September; the last, on 17 October. The skimmers nesting at Batiquitos Lagoon included two uniquely banded adults hatched at the Bolsa Chica Ecological Reserve (Orange County). Flights by Heermann's Gulls (*Larus heermanni*), Western Gulls (*Larus occidentalis*), and a White-tailed Kite (*Elanus leucurus*) near the colony elicited intensive chasing by small groups or individual skimmers. No nests were lost to predation.

In the 14 nests, skimmers laid a total of 37 eggs; of these, 16 hatched (32% hatching rate). Clutch sizes ranged from 1 to 4 [mode 3, mean 2.6, standard error (SE) 0.4], while the number of chicks hatched per nest ranged from 0 to 3 (mode 0, mean 0.9, SE 0.5). Seven chicks successfully fledged (0.5 fledglings per pair). The breeding "colony," situated along the eastern edge of the W-2 site, was 15.1 m in length and 10.8 m in width. The distance between nests varied from 1.9 to 3.9 m (mean 2.6 m, SE 0.3 m). The nest elevations ranged from +4.6 to +5.7 NGVD.

The Batiquitos Lagoon colony did not become established until atypically late in the season (Tomkins 1951, Erwin 1977, Erwin 1979, Safina and Burger 1983, Burger

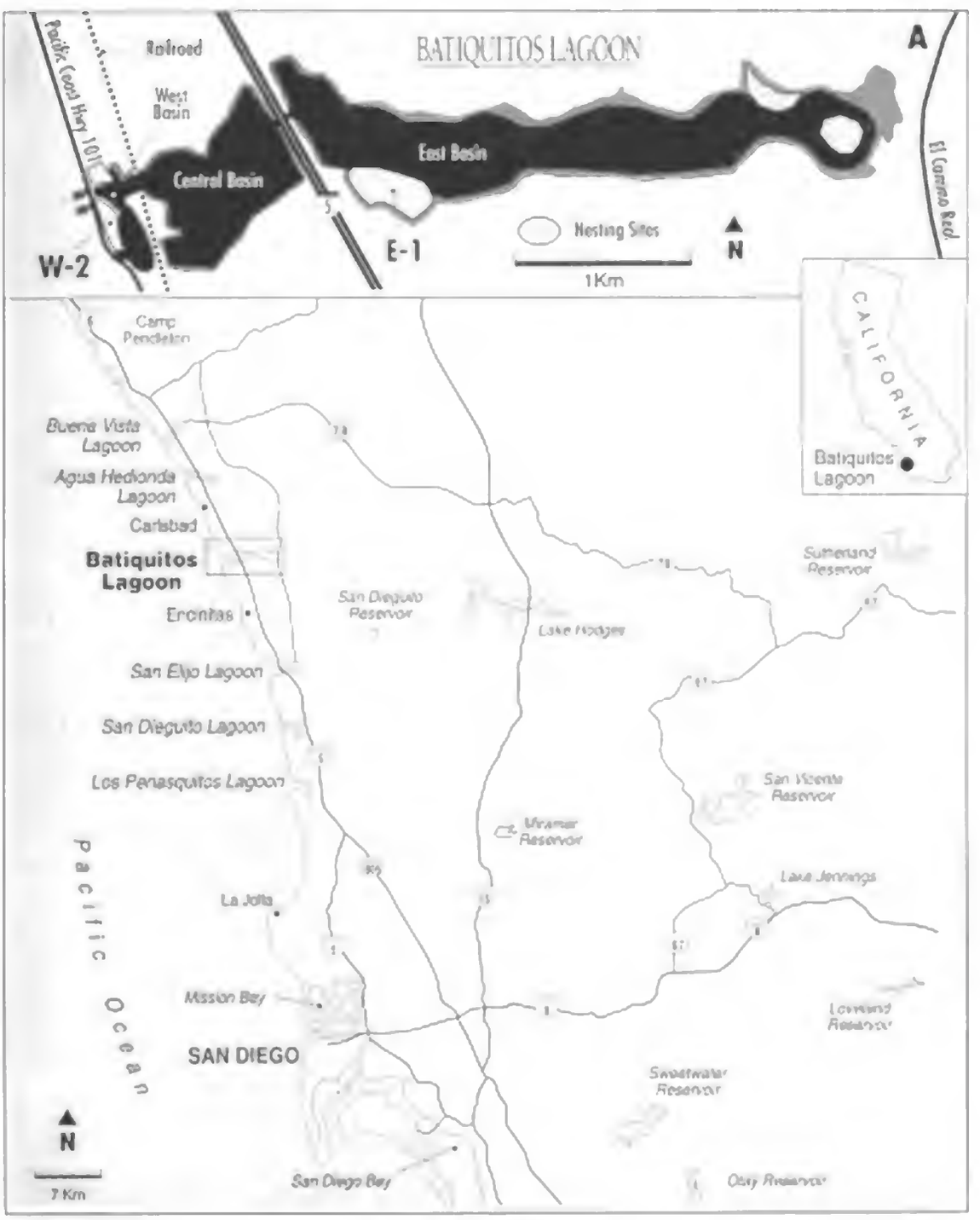

Figure 1. Batiquitos Lagoon, San Diego County, California. A, location of nesting sites.

and Gochfeld 1990). However, Black Skimmers nesting for the first time at Bolsa Chica Ecological Reserve in 1988 similarly initiated nesting in early August (C. T. Collins pers. comm.). Exceptionally late nesting may be more common when colonies are first being initiated.

Erwin (1977) suggested that the Black Skimmer may be adapted to colonizing new or ephemeral sites rapidly. Small colonies on the Atlantic Coast have been shown to have a high incidence of colony abandonment and reestablishment (Erwin et al. 1981, Burger and Gochfeld 1990). The skimmer's comparatively prolonged breeding season (Burger and Gochfeld 1990, Schew and Collins 1991) may give it nesting or renesting flexibility, within a year or in a subsequent year, in response to disruptions like predation, flooding, and perhaps interspecific displacement in crowded mixed colonies.

The recent nesting at Batiquitos Lagoon Ecological Reserve is further evidence of the Black Skimmer's range expansion. The five nesting sites incorporated in the Batiquitos Lagoon Enhancement Plan will provide additional habitat to support further skimmer colonies and help stabilize this expanding population. On 4 June 1996, 10 pairs of Black Skimmers were nesting at Batiquitos Lagoon, incubating a total of 21 eggs.

This work is a result of the Batiquitos Lagoon Enhancement Project, a joint restoration project of the city of Carlsbad and the port of Los Angeles in cooperation with the United States Fish and Wildlife Service, California Department of Fish and Game, National Marine Fisheries Services, and the California State Lands Commission. We are especially grateful to Justine Gibb, Don Kogle, and Roxanne Crestman for assistance in the field. Special acknowledgement is due of the forethought, continued support, and assistance of Ralph Appy, John Cahill, Betty Dehoney, Tracy Notebaert, Gary Wayne, Angus Whelchel, and the tireless efforts of Aaron English. We must recognize also Jim Van Norman and Nick Gennaro. The comments of Charles Collins and Philip Unitt improved the manuscript.

LITERATURE CITED

Appy, R. G. 1991. Enhancement of subtidal and intertidal estuarine habitats in southern California, in Recent Advances in Aquatic Habitat Technology (M. Nakamura, R. S. Grove, and C. J. Sonu, eds.). Proc. of the Japan–U.S. Symp. on Artificial Habitat for Fisheries.

Burger, J., and Gochfeld, M. 1990. The Black Skimmer: Social Dynamics of a Colonial Species. Columbia Univ. Press, New York.

City of Carlsbad. 1990. Final Environmental Impact Report. Batiquitos Lagoon Enhancement Project. City of Carlsbad, 2075 Las Palmas Dr., Carlsbad, CA 92009.

Coastal Conservancy. 1987. Revised Draft Batiquitos Lagoon Enhancement Plan. City of Carlsbad, 2075 Las Palmas Dr., Carlsbad, CA 92009.

Erwin, R. M. 1977. Black Skimmer breeding ecology and behavior. Auk 94:709–717.

Erwin, R. M. 1979. Species interactions in a mixed colony of Common Terns (*Sterna hirundo*) and Black Skimmers (*Rynchops niger*). Animal Behaviour 27:1054–1062.

Erwin, R. M., Galli, J., and Burger, J. 1981. Colony site dynamics and habitat use in Atlantic coast seabirds. Auk 98:550–556.

Safina, C., and Burger, J. 1983. Effects of human disturbance on reproductive success in the Black Skimmer. Condor 85:164–171.

Schew, W. A., and Collins, C. T. 1990. Age and sex determination in Black Skimmer chicks. J. Field Ornithol. 61:174–179.

Schew, W. A., and Collins, C. T. 1991. Annual and within-year variability in growth patterns of Black Skimmer (*Rynchops niger*) chicks. Proc. Int. Symp. Mar. Biol. 8:87–94.

Tomkins, I. T. 1951. Methods of feeding of the Black Skimmer (*Rynchops niger*). Auk 68:236–239.

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THE NAME OF THE CRAVERI BROTHERS' MURRELET

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Federico Craveri was a chemist, geologist, and naturalist who resided in Mexico for 18 years beginning in 1840. In 1847 he was joined for two years by his brother Ettore, who shared similar interests. Upon the death of their father, Ettore returned home to Italy to attend to the family museum in Brà, near Turin. Later, during his investigation of the economic potential of guano deposits on islands in the Gulf of California in 1856, Federico obtained specimens of a new species of murrelet, which, after considerable delay, was described and named by Tomasso Salvadori (1865) as *Uria craveri* (now *Endomychura* or *Synthliboramphus craveri*).

Practically from the outset this was known in North American literature as "Craveri's Murrelet," as, for example, in all six editions of the American Ornithologist's Union Check-list of North American Birds (1886–1983). Numerous sources concerning the origin of bird names invariably treat this murrelet as being dedicated solely to Federico Craveri (Coues 1882, Palmer 1928, Gruson 1972, Choate 1973, Jobling 1991). This is perpetuated even in the superb series of biographies by Mearns and Mearns (1992), from which the preceding biographical information was extracted, the error being the result of the authors' having had access only to an incomplete copy of Salvadori's paper that did not include the dedication (R. Mearns in litt. 15 July 1995).

Federico was the only one of the two brothers that Salvadori (1865:388) mentioned by name, and he was also identified as the collector of the type specimen, which has probably contributed to various authors' having long overlooked the fact that the species was clearly named for both brothers, as shown in Salvadori's original dedication (1865:388): "If it should truly be new I propose to name it *Uria Craveri* in memory of the generosity with which the brothers Mssrs. Craveri of Brà [*i signori fratelli Craveri di Brà*] have enriched the Turin Museum with many species of birds from Mexico and California" [my translation from the original Italian].

Had Salvadori intended the name for Federico alone, he would surely have used the spelling "*craverii*," just as he named *Lamprocolius defilippii* in the same paper in honor of Filippo De Filippi. The unmodified family name "*craveri*" was surely intended as a noun in apposition, probably deliberately to avoid the more cumbersome genitive plural "*craveriorum*," meaning "of the Craveris." Thus, although the scientific name is not subject to emendation, in the interest of historical accuracy it should be noted that the English name "Craveri's Murrelet" is incorrect. "Craveris'

Murrelet" is too subtle a change to be noticed and perpetuated, and "Craveris's Murrelet" is neither euphonious nor easily comprehended. Nor is "Craveri Brothers' Murrelet" ever likely to gain much currency. Perhaps we shall have to do as Salvadori did in this case and drop the possessive (the use of which I would otherwise defend), and simply refer to the bird as the Craveri Murrelet.

LITERATURE CITED

Choate, E. A. 1973. The Dictionary of American Bird Names. Gambit, Boston.

Coues, E. 1882. The Coues Check List of North American Birds, 2nd ed. Estes and Lauriat, Boston.

Gruson, E. S. 1972. Words for Birds. Quadrangle Books, New York.

Jobling, J. A. 1991. A Dictionary of Scientific Bird Names. Oxford Univ. Press, Oxford, England.

Mearns, B., and Mearns, R. 1992. Audubon to Xántus: The Lives of Those Commemorated in North American Bird Names. Academic Press, London.

Palmer, T. S. 1928. Notes on persons whose names appear in the nomenclature of California birds. Condor 30:261–307.

Salvadori, T. 1865. Descrizione di altre nuove specie di uccelli esistenti nel museo di Torino nota seconda. Atti Soc. Ital. Sci. Nat. 8:370–389.

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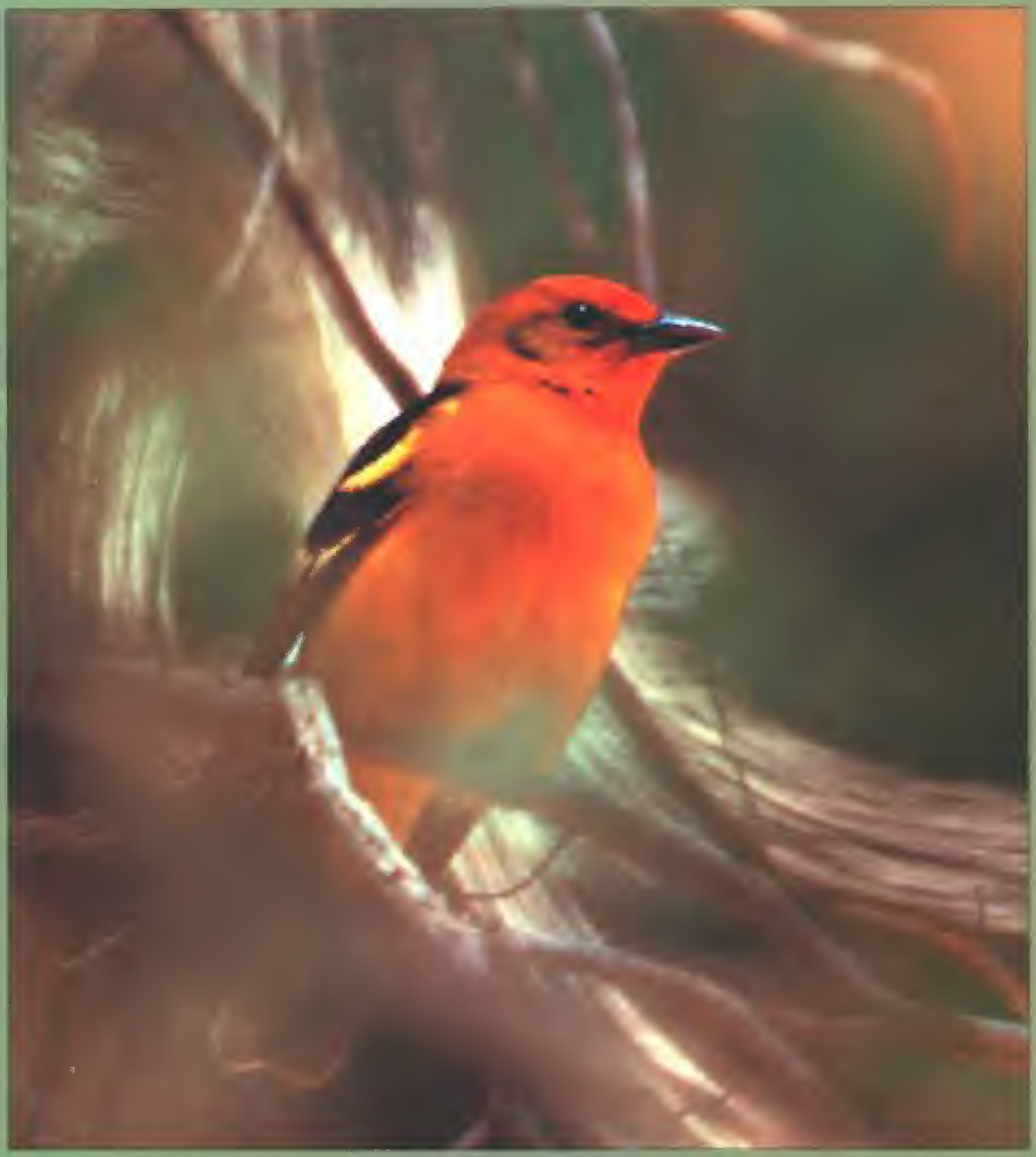

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Cover photo by © Jim & Deva Burns/NATURAL IMPACTS of Scottsdale, Arizona: Flame-colored Tanager *(Piranga bidentata)*, Madera Canyon, Arizona, May, 1995

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WESTERN BIRDS

Volume 27, Number 4, 1996

A REVIEW OF THE STATUS OF THE WHITE-FACED IBIS IN WINTER IN CALIFORNIA

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The White-faced Ibis (*Plegadis chihi*) has been classified as a Bird Species of Special Concern in California (Remsen 1978, S. Laymon pers. comm.) and a potential candidate for federal threatened or endangered status (USFWS 1991, Trapp 1995) because of population declines in the western United States, particularly in the 1960s and 1970s (USFWS 1985, Ryder and Manry 1994). Although the breeding status of the ibis in this region has been reviewed (Ryder 1967, USFWS 1985, Ryder and Manry 1994), little has been published on its abundance and distribution in winter. Here we summarize data on the winter distribution, abundance, and habitat use of the White-faced Ibis in California during the last half century. We also estimate the current winter population size and review historical population trends.

METHODS

We determined the winter status of the White-faced Ibis from wetland censuses, roost counts, and published and unpublished observations. As part of Point Reyes Bird Observatory's Pacific Flyway Project, we organized surveys of all shorebirds and ibis in all key wetlands of California's Central Valley and the Mojave, Colorado, and southern Great Basin deserts once to twice per winter from November 1992 to February 1995. Surveys were conducted from the ground, except in the Central Valley where logistical constraints dictated a combination of aerial and ground counts. The aerial counts were conducted primarily from a Cessna 172 aircraft by Page and

Shuford, the ground counts by a network of skilled volunteers, agency personnel, and project staff. We relied on ground counts for all wetlands in the San Joaquin Valley, except for the southern Tulare Basin, where we used aerial surveys for private duck clubs, a few other private wetlands, and flooded agricultural lands. Aside from the Tulare Basin, we did not survey much agricultural habitat in the San Joaquin Valley. We knew of no ibis concentrations in agricultural habitat in this region except next to the 72,000-ha Grasslands wetlands complex near Los Banos, Merced County, where roost counts described below appear to have included ibis from agricultural lands. Aerial surveys were the primary census method for the Suisun Marsh, Sacramento–San Joaquin River Delta (Delta), and Sacramento Valley, though we regularly undertook ground counts on federal and state wildlife areas and a few selected private wetlands and sewage ponds. We gathered data on habitat use by assigning observations of ibis occurrence to broad habitat categories, namely, managed state or federal wildlife refuges, managed duck clubs, pasture lands, rice-stubble fields, fallow fields, alfalfa fields, and reservoirs or ponds. We were not able to assign some flying ibis to specific habitats.

We also obtained data from counts of ibis coming to nighttime roost sites in four known areas of concentration. From 29 January to 11 April 1995, Safran and colleagues made 14 counts of ibis at a primary roost and 3 at a secondary roost at duck clubs in the Grasslands wetlands complex. Four to seven observers conducted coordinated counts at several roosts in the Grasslands and at Mendota Wildlife Area (WA), Fresno County, on 28 December 1995 and 29 January 1996. Three additional counts were taken at the main Grasslands roost site from 16 to 22 February 1996. From 5 December 1994 to 29 March 1995 and on 16 January 1996, K. Sturm, other Salton Sea National Wildlife Refuge (NWR) personnel, and volunteers made five counts at three to five roosts near Calipatria and Imperial in the Imperial Valley south of the Salton Sea, Imperial County. J. Pike conducted roost counts at the Prado Basin, Riverside and San Bernardino counties, on 28 February and 28 November 1995 and on 8 January and 26 February 1996. A. Montoya and B. Rasch counted ibis at a roost at Cibola NWR, Imperial County, on 7 dates from 5 December 1995 to 18 January 1996.

We also examined ibis counts taken by the California Department of Fish and Game during aerial waterfowl surveys of the Grasslands and Mendota WA, Fresno County, from November through February, 1980–81 to 1993–94; surveys for 1994–95 and 1995–96 were not used because they included only areas closed to hunting, where few ibis occurred.

For additional winter (Nov–Mar) records of White-faced Ibis in California, we searched the published literature, including the seasonal reports and Christmas Bird Counts (CBC) in *Audubon Field Notes* (AFN), *American Birds* (AB), and *National Audubon Society Field Notes* (NASFN); we checked the unpublished notebooks of the regional editors of the middle Pacific coast region of NASFN (cited as NB) and contacted regional and local experts in California. We summarized all CBC data and used them to assess population trends from 1970 to 1994 and to estimate the number of ibis wintering on the coastal slope of central and southern California in 1994–95, when our surveys from the more inland sections of California were most

complete. CBC data for given years are reported by the beginning year of the count period (e.g., 1994 for 1994–95). We graphed data for only the two inland CBCs that sampled core areas for wintering ibis and had complete [Salton Sea (south)] or nearly complete (Los Banos, missed 1987) records from 1970 to 1994. We graphed numbers for all coastal CBCs (combined) from Ventura County southward from 1980 to 1994, when data were nearly complete for all sites. We also obtained specimen records of wintering ibis from the Los Angeles County Museum of Natural History (LACM), Museum of Vertebrate Zoology (MVZ), San Bernardino County Museum (SBCM), San Diego Natural History Museum (SDNHM), Santa Barbara Museum of Natural History (SBMNH), and Western Foundation of Vertebrate Zoology (WFVZ).

Our designations of various drainage basins in the Central Valley follow the maps of the Central Valley Habitat Joint Venture (USFWS 1990), except that we include Mendota WA in the San Joaquin rather than the Tulare Basin.

RESULTS

Historical Status, Pre-1945

Data on the winter status of the White-faced Ibis in California prior to 1945 are very limited. Grinnell and Miller (1944) believed that the White-faced Ibis was chiefly a summer resident in California and that "in some years a few have wintered." They listed the following wintering localities: between Colusa and Williams, Colusa County, in the Sacramento Valley; Stockton, San Joaquin County, in the Sacramento–San Joaquin River Delta; Los Banos, Merced County, in the San Joaquin Valley; and in Los Angeles County and near San Diego, San Diego County, along the southern California coast. They also listed records of "migrant or vagrant occurrence," including a 10 December 1925 record from Humboldt Bay, Humboldt County, which falls outside the main historical or current wintering range (Figure 1). Other sites of pre-1945 winter ibis occurrence apparently unknown to Grinnell and Miller were Mendota Pool, Fresno County, and Tulare Lake in the southern San Joaquin Valley (see below and Appendix) and the Salton Sea, Imperial County (specimen [SDNHM 18121] collected by B. Bailey on 28 February 1940).

Grinnell et al. (1918) summarized most of what was known of the former abundance of ibis wintering in California. Up to that time the largest winter numbers noted were "several dozen" in the markets of Stockton in the winter of 1885, "more than a hundred" near Stockton on 9 February 1886, and "about 200" near Los Banos on 30 October 1914. W. Minturn (unpubl. field notes) recorded 100 on the Los Banos Game Refuge (now Los Banos WA) on 7 Dec 1935. He also recorded flocks of 300 and 200 on 28 Nov and 10 Dec 1938, respectively, from Tulare Lake (other records in Appendix) and of 12 on 28 March 1936 and 2 on 11 Feb 1939 near Mendota Pool, Fresno County. Holterhoff (1885) reported 20 from Mission Valley, San Diego County, on 1 January 1885, but considered a flock of this size "especially unusual" for the area. The only historical report from the Sacramento Valley was of two birds between Colusa and Williams, Colusa County, on 23 and 27

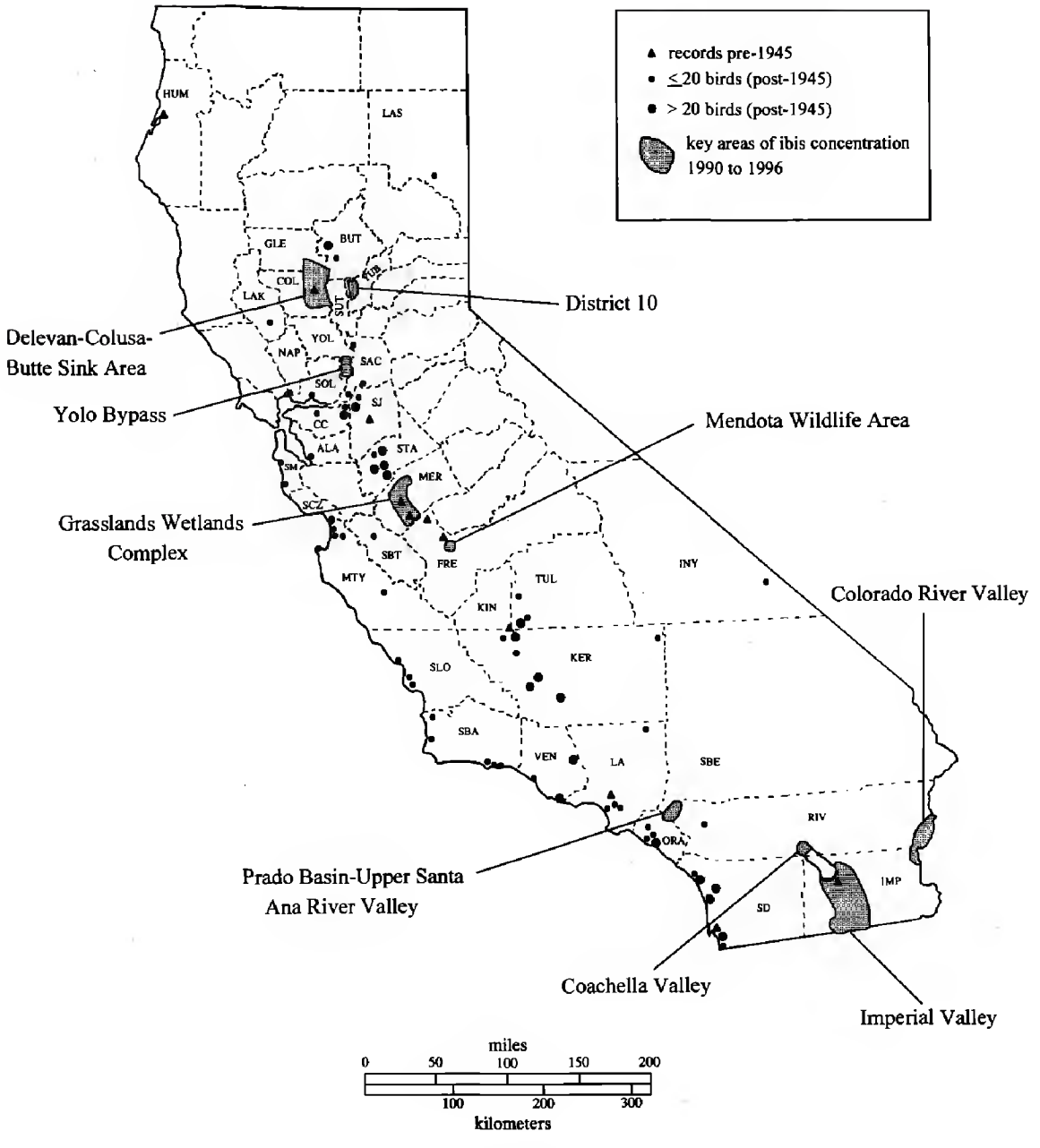

Figure 1. Historical and recent distribution of the White-faced Ibis in winter in California. Records since 1945 were not plotted if they fell within the key areas of ibis concentration, 1990 to 1996 (see Appendix for additional records). County abbreviations: ALA, Alameda; BUT, Butte; COL, Colusa; CC, Contra Costa; FRE, Fresno; GLE, Glenn; HUM, Humboldt; IMP, Imperial; INY, Inyo; KER, Kern; KIN, Kings; LAK, Lake; LAS, Lassen; LA, Los Angeles; MER, Merced; MTY, Monterey; NAP, Napa; ORA, Orange; RIV, Riverside; SAC, Sacramento; SBT, San Benito; SBE, San Bernardino; SD, San Diego; SJ, San Joaquin; SLO, San Luis Obispo; SM, San Mateo; SBA, Santa Barbara; SCZ, Santa Cruz; SOL, Solano; STA, Stanislaus; SUT, Sutter; TUL, Tulare; VEN, Ventura; YOL, Yolo; YUB, Yuba.

February 1941 (Harwell 1941). The largest number reported at any season was Belding's (1905) observation of a northbound passage of 4000 to 5000 ibis near Stockton from 5 to 7 May 1879. But neither he nor other authors (Grinnell et al. 1918, Grinnell and Miller 1944) speculated on whether or not these birds may have wintered in the Delta or elsewhere in California.

Status, 1945 to Present

During the past 50 years, White-faced Ibis have wintered in California primarily in the Sacramento, San Joaquin, Coachella, Imperial, and Colorado River valleys and on the coastal slope from Ventura County southward (Figure 1), as documented below by region.

Great Basin Desert. The only winter record of ibis in the Great Basin is of one bird near Standish on the Honey Lake CBC on 21 December 1995 (Appendix).

Interior Coast Range. The only winter record of ibis in the northern Coast Range is of one bird at Clear Lake, Lake County, from 2 January to 5 February 1981 (Appendix).

Sacramento Valley. Wintering ibis were rare and irregular in the Sacramento Valley through the 1970s, with high counts of 11 in both November 1978 and March 1979 (Appendix). Numbers of sightings increased greatly in the 1980s, when flocks of up to 225 were seen regularly, usually at or near Colusa and Delevan NWRs in Colusa County (Appendix, M. Wolder in litt.). Numbers continued to increase in the 1990s. In 1990, up to 145 wintering ibis appeared at Sutter NWR, Sutter County, for the first time (M. Wolder in litt.). Eleven hundred ibis on 12 January 1994 and 1370 on 5 December 1994 at Delevan NWR (M. Wolder pers. comm.) may have represented the entire population in the Colusa Basin at the time (cf. Table 1). Ibis numbers on Pacific Flyway Project counts of the Sacramento Valley from November and January, 1992–93 to 1994–95, ranged from 763 to 3120 birds (Table 1). On these counts ibis concentrated in the Colusa Basin (Glenn and Colusa counties) from Willow Creek Waterfowl Management Area (WMA) south through Delevan NWR, Lurline WMA, and Colusa NWR; in the Butte Basin (Butte, Glenn, and Sutter counties) from the vicinity of the Little Dry Creek Unit of Upper Butte Basin WA south through the Butte Sink WMA; in District 10 of

Table 1 Numbers of White-faced Ibis on Pacific Flyway Project Winter Surveys of the Central Valley (Figure 1), 1993–1995

Subarea	Jan 1993	Nov 1993	Jan 1994	Nov 1994	Jan 1995
Colusa Basin	362	679	883	1275	1507
Butte Basin	401	755	862	1432	21
American Basin	0	102	110	101	75
Sutter Basin	0	116	28	12	6
Yolo Basin	0	25	282	300	2
Delta	0	0	0	13	60
Suisun Marsh[a]	0	1	2	—	—
San Joaquin Basin[b]	1479	3409	2949	3559	2556
Tulare Basin	54	1	0	206	1
Totals	2296	5088	5116	6898	4228

[a]No surveys of Suisun Marsh were conducted in November 1994 and January 1995.
[b]Numbers of ibis on these surveys underrepresented the size of the wintering population of the San Joaquin Basin; see text for possible explanations.

the American Basin north of Marysville (Yuba County); in the Sutter Basin (Sutter County) on or near Sutter NWR; and in the southern portion of the Yolo Bypass (Yolo County) (Figure 1).

Sacramento–San Joaquin River Delta. After 1886, ibis were not recorded in the Delta again until two were reported from Staten Island, San Joaquin County, on 3 Dec 1988 (NB). That ibis have been recorded on only 3 of 25 Stockton CBCs since 1969 (Table 2) documents the paucity of recent winter records for the Delta. We found 13 and 60 ibis on 2 of 5 winter surveys of the Delta from January 1993 to January 1995 (Table 1).

Suisun Marsh. The first winter records of ibis in the Suisun Marsh were of six birds at Grizzly Island WA, Solano County, in December 1975 and nine near West Pittsburg, Contra Costa County, in December 1982 (Appendix, Table 2). That ibis have been recorded on only 3 (all in 1990s) of 26 Benicia CBCs since 1969 (Table 2) indicates the scarcity of wintering ibis in the Suisun Marsh. We found only one to two ibis on two of three winter surveys from January 1993 to January 1994 (Table 1).

San Joaquin Valley. For the last 50 years, the Los Banos area, Merced County, has been a stronghold of ibis in the San Joaquin Valley. Although systematic surveys of the entire area are lacking, high numbers from opportunistic winter counts in the mid-1960s to late 1970s ranged from 100 to 250 (Appendix). Median numbers of wintering ibis on multi-species surveys of Los Banos WA were 0 in 1969 (min.–max. = 0–111, n = 5), 124 in 1970 (min.–max. = 20–200, n = 7), 72 in 1971 (min.–max. = 0–171, n = 9), 37 in 1972 (min–max. = 0–50, n = 4), and 75 in 1973 (min.–max. = 0–130, n = 7); no ibis were seen on Volta WA on these surveys (R. O. Wilbur unpubl. data). Median numbers of ibis on the Los Banos CBC increased from 115 in both the 1970s and 1980s to 595 from 1990 to 1994 (Table 2, Figure 2). The more comprehensive California Department of Fish and Game aerial surveys of the Grasslands wetland complex near Los Banos and Mendota WA, Fresno County, also showed a marked increase in ibis numbers from 100–300 in the early 1980s, to 500–700 in the mid- to late 1980s, to 2000–2200 in 1992–93 and 1993–94 (Figure 3). Pacific Flyway counts in these same wetlands between January 1993 to January 1995 ranged from 1479 to 3559 ibis (Table 1).

Ten roost counts from late January to mid-March 1995 at the Willow Farms duck club in the north Grasslands, however, yielded 4323 to 7872 birds (median = 6050), and two mid-March counts at a smaller roost in the south Grasslands found 434 and 635 ibis, which were probably additional (Safran et al. pers. obs.). Coordinated roost counts in the greater Grasslands area on 28 December 1995 yielded 8682 ibis and on 29 January 1996 10,115–12,115 ibis. Of these, 6064 and about 6000–8000 were at Willow Farms duck club in the north Grasslands, 2300 and 3235 at one to two duck clubs in the south Grasslands, and 318 and 880 at Mendota WA (S. Brueggemann, M. Peters, T. Poole, D. Shuford et al. pers. obs.). Three additional counts at Willow Farms duck club from 16 to 22 February 1996 ranged from 5439 to 8192 ibis (S. Frazer in litt.).

Up to 145 ibis were reported to the north of the Grasslands along the San Joaquin River, Stanislaus County, from the late 1970s to the early 1990s (Appendix). Although ibis numbers may have increased there over this

period, limited and irregular observer coverage in the 1990s makes assessment of trends difficult (H. Reeve pers. comm.).

After occasional sightings in the late 1940s and 1950s, small numbers of ibis began to be recorded regularly in the southern San Joaquin Valley, beginning in the 1980s in the Tulare Lake basin and Goose Lake bottoms areas of Kings, Tulare, and Kern counties (Appendix, Table 2). Numbers in these areas appear to have increased in the 1990s (Appendix). The highest count in the southern San Joaquin Valley was 500 ibis on 30 Dec 1995 foraging at shallow ponds along Brimhall Road southwest of Rosedale, Kern County and roosting at night about 3.5 km to the south in the Kern River recharge ponds southwest of Bakersfield (M. Chichester pers. comm.).

Northern and Central California Coast. Except for a 10 December 1925 record for Humboldt County previously cited, and recent records

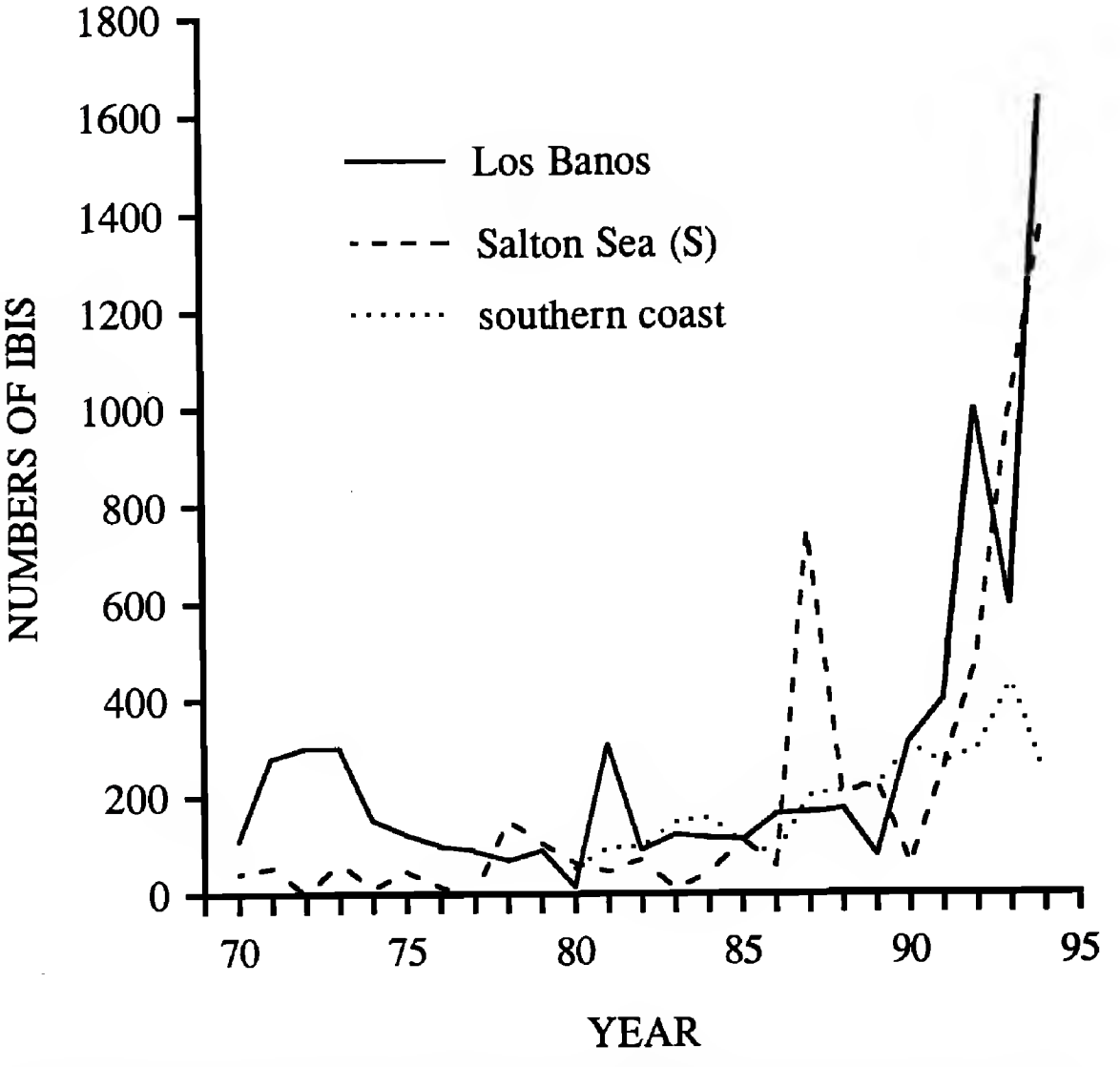

Figure 2. Trends in numbers of White-faced Ibis on Christmas Bird Counts, 1970 to 1994. Data presented separately for the two key inland counts—Los Banos and Salton Sea (south)—and for all counts combined on the southern California coast (Ventura County southward, 1980 to 1994). See Methods for explanation of data presentation and Table 2 and Appendix for additional CBC data.

Table 2 Numbers of White-faced Ibis on California Christmas Bird Counts, 1970–1994[a]

Count name	1970 to 1979				1980 to 1989				1990 to 1994			
	No. counts/ total counts	min.	med.	max.	No. counts/ total counts	min.	med.	max.	No. counts/ total counts	min.	med.	max.
Northern Coast Range												
Clear Lake	0/5	0	0	0	1/9	0	0	1	0/5	0	0	0
Sacramento Valley												
Peace Valley	0/7	0	0	0	0/10	0	0	0	2/5	0	0	4
Sacramento	0/10	0	0	0	0/10	0	0	0	2/5	0	0	21
Suisun Marsh												
Benicia	0/10	0	0	0	0/10	0	0	0	3/5	0	1	13
Contra Costa County	0/10	0	0	0	1/10	0	0	9	0/4	0	0	0
Sacramento–San Joaquin River Delta												
Stockton	0/10	0	0	0	1/10	0	0	1	2/4	0	3.5	94
San Joaquin Valley												
Caswell–Westley	—	—	—	—	4/6	0	1	22	1/5	0	0	67
Los Banos	10/10	68	115	301	9/9	15	115	307	5/5	313	595	1631
Creighton Ranch	—	—	—	—	1/5	0	0	2	—	—	—	—
Buena Vista	—	—	—	—	0/1	0	0	0	1/2	0	30	60
Central and Southern Coast												
Moss Landing	0/5	0	0	0	2/10	0	0	1	5/5	1	3	6
Santa Maria–Guadalupe	0/1	0	0	0	1/9	0	0	1	0/5	0	0	0
La Purisima	—	—	—	—	1/3	0	0	1	0/4	0	0	0
Santa Barbara	2/10	0	0	2	0/9	0	0	0	0/5	0	0	0
Ventura	—	—	—	—	1/10	0	0	1	1/5	0	0	14
Thousand Oaks	2/7	0	0	11	3/10	0	0	60	5/5	2	78	82
Pasadena–San Gabriel Valley	0/10	0	0	0	0/10	0	0	0	3/5	0	1	2
San Bernardino Valley	0/10	0	0	0	0/10	0	0	0	1/4	0	0	30
Santa Ana River Valley	0/50	0	0	0	3/9	0	0	134	5/5	1	65	151
Orange County (northeastern)	1/9	0	0	5	0/10	0	0	0	1/5	0	0	1

Orange County (coastal)	5/10	0	0.5	8	2/10	0	0	1	4/5	0	2	8
Oceanside–Vista–Carlsbad	10/10	1	9.5	68	10/10	8	37	100	5/5	36	145	184
Escondido	—	—	—	—	2/5	0	0	6	4/5	0	41	75
Rancho Santa Fe	—	—	—	—	10/10	2	13.5	55	4/5	0	6	23
San Diego	2/9	0	0	6	9/10	0	12	100	2/5	0	0	4
Coachella and Imperial Valleys												
Salton Sea (north)	3/10	0	0	280	7/7	15	67	256	5/5	138	217	570
Salton Sea (south)	8/10	0	43.5	150	10/10	9	67.5	746	5/5	58	485	1366
Other Interior Sites												
Lancaster	—	—	—	—	1/10	0	0	2	0/5	0	0	0
Sespe WA	0/9	0	0	0	1/6	0	0	66	—	—	—	—

[a]Data reported as ratio of number of counts on which ibis were counted to number of counts taken, minimum count, median count, and maximum count. The limited data available prior to 1970 are reported in the text or the Appendix.

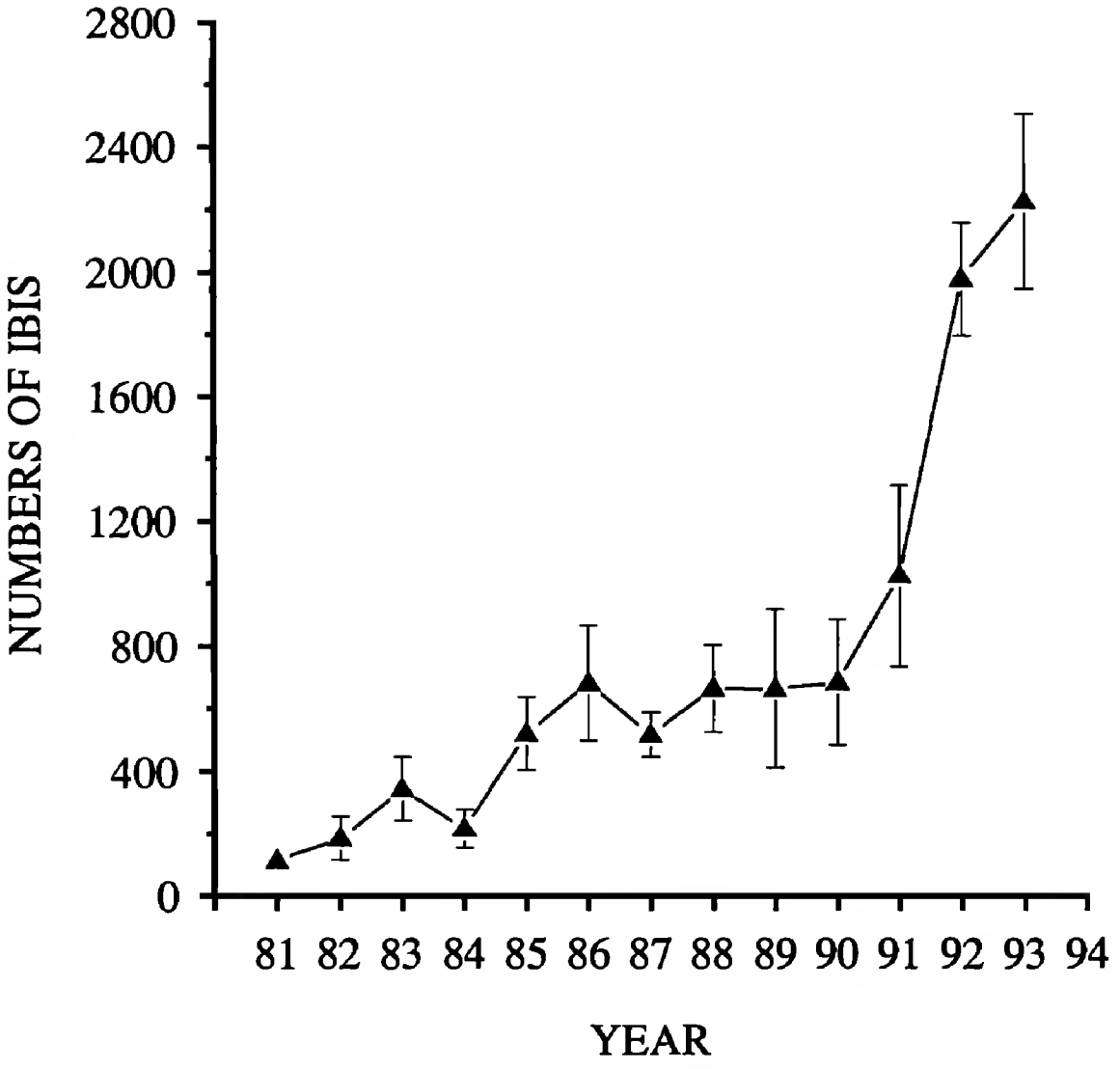

Figure 3. Numbers of White-faced Ibis on California Department of Fish and Game winter (Nov–Feb) waterfowl surveys of the Grasslands wetlands complex around Los Banos, Merced County, and Mendota WA, Fresno County, 1981–82 to 1993–94. Data expressed as means (±1 standard error).

there in early November (presumably representing late fall migrants), there are no winter records of ibis for the California coast north of San Francisco Bay (Appendix). In the San Francisco Bay area there are only four winter records (from Napa, Alameda, and San Mateo counties; Appendix). In Santa Cruz County, one to six ibis have been recorded irregularly in winter since 1991 (Appendix). In Monterey County, aside from one sighting in 1953, all winter records are post-1980 and range from one to seven individuals each (Appendix, Table 2). The lone record for San Benito County is of one ibis at Paicines Reservoir on 24 December 1995 (D. Serdehely fide K. Van Vuren).

Southern California Coast. Ibis have continued to winter on the southern California coast in recent decades. They occur irregularly in San Luis Obispo and Santa Barbara counties and regularly, though locally, from Ventura County south to the Mexican border (Figure 1, Table 2, Appendix). The core areas of most regular occurrence are near Point Mugu, Ventura

County; the Prado Basin and adjoining upper Santa Ana River Valley area of western San Bernardino and Riverside counties; and lowlands of northwestern San Diego County from the Santa Margarita River to the San Dieguito River (Del Mar and Lake Hodges). The largest numbers have been at a nighttime roost at the Prado Basin, where there were 630 birds on 28 February 1995 and 680 birds on 26 February 1996 (J. Pike in litt.). The Santa Ana River Valley CBC, on which ibis numbers have increased greatly from the 1980s to the 1990s, samples only a portion of the agricultural fields of that river valley and the Prado Basin used by ibis (L. LaPré in litt.).

Reports of declines in wintering ibis on the southern California coast in the 1970s (Remsen 1978; AB 25:627, 29:741) seem equivocal in light of CBC data. Median ibis numbers on the Orange County (coastal) CBC decreased from 5 (min. = 0, max. = 16) from 1960 to 1969 to 0.5 (min. = 0, max. = 8) from 1970 to 1979, whereas on the Oceanside–Vista–Carlsbad CBC they increased from 2 (min. = 0, max. = 20) to 9.5 (min. = 1, max. = 68) over a similar period. Overall ibis numbers increased on the southern coast in the 1980s and, particularly, the 1990s (Table 2, Figure 2). This was not universal, though; despite increases on most counts, ibis numbers decreased from the 1980s to the 1990s on the Rancho Santa Fe and San Diego counts (Table 2). During this period, however, there was inconsistent observer coverage of potential ibis habitat on the Rancho Santa Fe CBC, and decreases in ibis numbers on the San Diego CBC are attributable to the termination of alfalfa growing and abandonment of moist agland in the Tijuana River Valley, the only area where the species was ever regular on the count (P. Unitt pers. comm.).

Imperial and Coachella Valleys. Although first recorded in the region in winter in 1940, by the late 1940s and early 1950s up to 3500 White-faced Ibis were being reported from the vicinity of the Salton Sea, Imperial County (Appendix). By the mid-1950s numbers had declined sharply, and through the 1970s the highest counts were in the low hundreds (Appendix). Numbers increased greatly in the 1980s to 1990s, as evidenced by opportunistic January counts of 450 near Seeley in 1983 and 6000 near Brawley in 1989 (Appendix) and by sharp upward trends on the Salton Sea (south) (Table 2, Figure 2) and Salton Sea (north) CBCs (Table 2). The true magnitude of the increase was revealed by Pacific Flyway Project counts of up to 16,000 ibis at various nighttime roosts in agricultural lands in the Imperial Valley in 1994–95 and 1995–96 (Table 3).

Colorado River Valley. Rosenberg et al. (1991) considered the White-faced Ibis a rare but regular winter visitor along the lower Colorado River Valley. They did not list any specific winter records for the California side of the river but did cite counts of up to 50 ibis for adjacent Arizona. On a 8 December 1993 Pacific Flyway Project survey, 95 ibis were found in agricultural lands south of Blythe, Riverside County, California (B. W. Anderson in litt.). In recent years, wintering ibis have been associated with agricultural fields on the California side of the Colorado River Valley in two disjunct areas: from Parker Dam south to Cibola NWR and from Imperial Dam south to Yuma (B. W. Anderson pers. comm.). Numbers of ibis at a roost north of Oxbow Lake, Cibola NWR, Imperial County, that reached a peak of 350 on 5 December 1995 had dwindled to 40 by 18 January 1996 (B. Rasch in litt.).

Table 3 Numbers of White-faced Ibis Counted at Evening Roosts at Various Sites in the Imperial Valley, Imperial County, Winters 1994–95 and 1995–96[a]

	1994	1995			1996
Roost Sites	Dec	Jan[b]	Feb	Mar	Jan[c]
Ramer Lake[d]	7935	1007	2144	7100	4046
Ostercamp duck club[e]	2500	115	dry	dry	3500
Mesquite Lake duck club[e]	5400	1	3000	2169	700
McElvaney duck club[e]	—	—	838	—	—
Wilderness Unlimited duck club[e]	—	—	3420	3354	435
Totals	15,835	1123	9402	12,623	8681

[a]Data from K. Sturm et al./Salton Sea NWR.
[b]Heavy rain showers prior to count may have influenced numbers.
[c]Windy at time of count, and many ibis already at roost sites when survey began, making them hard to count.
[d]Located 4.5 km S of Calipatria.
[e]Located within an 8-km arc NE to SE of Imperial.

Other Sites in the Interior of Southern California. One or two ibis have been recorded in winter in Death Valley, Inyo County, at China Lake, Kern County, at Corona and the San Jacinto Valley, Riverside County, and near Lancaster, Los Angeles County (Appendix).

Estimated Winter Population Size: 1994–95

From counts we estimated that a minimum of 27,800 to 28,800 ibis were wintering in California in 1994–95. Of these, 2000–3000 were in the Sacramento Valley (Table 1), $\leq$ 60 in the Sacramento–San Joaquin River Delta (Table 1), at least 13 in the Suisun Marsh (Benicia CBC), up to 8000 in the Grasslands wetlands area in the San Joaquin Valley, $\leq$ 200 in the Tulare Basin of the San Joaquin Valley (Table 1), at least 570 in the Coachella Valley [Salton Sea (north) CBC], up to 16,000 in the Imperial Valley (Table 3), at least 95 along the Colorado River in the Palo Verde Valley, Riverside County (B. W. Anderson in litt.), and at least 873 along the coastal slope of central and southern California (630 in Prado Basin, Riverside Co.—J. Pike in litt.; rest on various CBCs, NASFN 49:788–835).

Habitat Use

Habitat use by wintering ibis in California varies by region. On five winter surveys of the Sacramento Valley, ibis were concentrated in agricultural fields and managed wetlands (Table 4). Agricultural fields supported an average of 66% [standard error (SE) = 6.45, min. = 52%, max. = 87%] of all ibis on these surveys; rice stubble fields were the single most important habitat, as they held on average 53% (SE = 7.98, min. = 23%, max. = 79%) of all ibis. State, federal, and private wetlands combined supported an

average of 28% (SE = 6.90, min. = 7%, max. = 47%) of the ibis. Pasture lands supported 6% of all ibis on one of the five surveys. Flying birds that we were unable to assign to habitat ranged from 0% to 14% of the ibis on the surveys. We believe the percentages reported in Table 4 reflect the habitat distribution of foraging rather than roosting ibis. Despite the presence of apparently suitable foraging habitat throughout much of the Sacramento Valley during our winter surveys, all ibis recorded were within five kilometers of managed wetlands. We did not locate nighttime ibis roosts in the Sacramento Valley, but suspect that they were in managed wetlands, as in the San Joaquin and Imperial valleys.

It was difficult to compare ibis use among habitats in the San Joaquin Valley because we did not survey most agricultural fields directly. At the Grasslands wetlands, much larger ibis numbers at evening roosts suggest that we either greatly undercounted ibis foraging during the day and/or missed many ibis because of minimal coverage of agricultural lands. Information on use of agricultural habitats in the San Joaquin Valley is fragmentary. The largest number reported from agricultural lands in winter was about 500 in an irrigated pasture near Los Banos in winter 1994–95 (D. Wollington pers. comm.). Safran observed about 200 ibis foraging in flooded alfalfa fields west of Kesterson NWR, Merced County, on 18 March 1995. During March that year, water levels in nearby duck clubs were high from an extended period of heavy rain, and ibis were rarely seen foraging in these wetlands. Hundreds of ibis flying south along the San Joaquin River in northern Merced County on 11 February 1995 had likely been foraging in nearby pasture lands (S. Frazer pers. comm.). G. Gerstenberg and H. Reeve (pers. comm.) also have seen smaller numbers of ibis foraging periodically in pastures and other agricultural fields in Merced and Stanislaus counties in winter.

On five ground counts in managed wetlands in the Grasslands, about 66.6% of the ibis (SE 6.54, min. = 47%, max. = 84%) were on private duck

Table 4 Percentage of White-faced Ibis Found in Various Habitats on Surveys of the Sacramento Valley, Winters 1992–93 to 1994–95

Habitats	Nov 1993	Nov 1994	Jan 1993	Jan 1994	Jan 1995
Managed refuges	7	1	8	7	41
Managed duck clubs	0	35	5	31	6
Pasture lands	0	0	0	0	6
Rice stubble fields	79	57	53	53	23
Fallow fields	0	0	34	0	23
Alfalfa fields	0	<1	0	0	0
Flying birds	14	6	0	9	0
Total numbers	1677	3120	763	2165	1611

clubs and 33.4% (SE = 6.54, min. = 16%, max. = 53%) were on state and federal wildlife refuges. This suggests that on average ibis showed no preference for either type of wetland, as private lands make up about two-thirds and public lands about one-third of the wetlands in the Grasslands (T. Poole pers. comm.). At the large nighttime roost at the Willow Farms duck club in the Grasslands, ibis were standing in shallow open water at the center of a 52.6-ha pond bordered on the margins with 90% emergent vegetation—75% Broad-leaved Cattail (*Typha latifolia*) and 25% Hardstem Bulrush (*Scirpus acutus*) (Safran pers. obs.) At Mendota WA in December 1995 ibis were roosting amid annual vegetation up to a meter tall on slightly submerged or exposed islands in ponds (S. Brueggemann in litt.).

In the Coachella Valley–Salton Sea–Imperial Valley area, the vast majority of the thousands of ibis appeared to forage in irrigated agricultural lands, particularly alfalfa and wheat (K. Sturm pers. comm.). U. S. Fish and Wildlife aerial waterfowl surveys of all key wetland habitats there on 15 February and 23 March 1994 found only 75 and 30 ibis, respectively (K. DesRoberts in litt.). By contrast, all large nighttime ibis roosts in the Imperial Valley were on managed wetlands (Table 3), where birds roosted either in open ponds, in stands of drowned Saltcedar trees (*Tamarix chinensis*), or in cattails (K. Sturm pers. comm.). Ibis wintering near the Colorado River also concentrated their foraging in alfalfa fields (B. W. Anderson pers. comm.).

On the coastal slope of central and southern California wintering ibis use a variety of habitats including marshy pasture lands, managed or natural freshwater marsh, pond edges and lakeshores, and, occasionally, the margins of brackish lagoons and estuaries (R. L. Barber, D. DesJardin, L. LaPré, D. Roberson, K. Weaver, and D. Willick in litt.).

DISCUSSION

Historical Status

It is difficult to compare the picture of the historical status of wintering ibis in California painted by Grinnell and Miller (1944) to that which we have compiled for the last half century. Grinnell and Miller (1944) listed only 5 sites where ibis were known to winter, but from unpublished sources we have located three additional sites where ibis wintered prior to 1941. Two of these sites—the Mendota area and the Salton Sea—are currently of major importance to wintering ibis. The Tulare Lake area currently does not support large numbers of wintering ibis, but given that under favorable conditions it was formerly the largest freshwater lake and marsh system west of the Mississippi River (Johnson et al. 1993, Thelander and Crabtree 1994), it seems likely that this site, along with the Los Banos area, had the potential historically to have been a stronghold of wintering ibis in California. In fact, the highest numbers recorded before 1940 were from Tulare Lake, the Los Banos area, and the Delta.

Grinnell and Miller (1944) implied that the ibis formerly wintered only irregularly in California. By contrast, unpublished observations by W. Minturn indicate that in the late 1930s and early 1940s, at least, ibis were of regular occurrence in the San Joaquin Valley. This single observer recorded ibis in

winter in this region in at least 6 of the 8 years from 1935 to 1942 and had at least two sightings in each of 4 years (Appendix). Grinnell et al. (1918) concluded that because of the small winter population at the time hunting probably had little effect on ibis numbers in California. But the state's having from 1866 to 1915 an October to March open season and a bag limit of 20–25 ibis argues that the species must have occurred at least somewhat regularly to warrant such regulations. Prior to these regulations, Kennerly (1859) and Heermann (1859), respectively, reported that ibis were "very common" in the market in San Francisco and often on sale in the California markets.

The remark by Grinnell et al. (1918: 1) that California up to that time had a small number of careful observers, coupled with the difficulty then of travel to remote parts of the state, must have biased these authors' appreciation of the status of ibis in comparison to our knowledge from recent decades, when both observer coverage and ease of travel have increased greatly. Today the Mendota area still gets limited observer coverage as reflected in the few reports of wintering ibis there (Appendix) even in the 1980s and 1990s when ibis numbers were expanding rapidly and hundreds were seen on systematic surveys. By contrast, the Los Banos area has had much better coverage, and during the species' population low for the last half century in the 1970s the species was still recorded annually (Appendix). It is unclear whether ibis were not recorded in winter in the Imperial Valley until 1940 because they first colonized the area then, possibly in response to changing agricultural practices, or because they were previously overlooked. Although Grinnell and his colleagues made superlative efforts to document the avifauna of the state via various monographs (e.g., Grinnell 1923, Grinnell et al. 1930), no substantial historical publications exist on the waterbird avifauna of most of the state's great (or formerly great) interior wetlands and lakes, such as Tulare, Mono, and Owens lakes and the Salton Sea (see Jehl 1994). Hence, our historical knowledge of the wetland avifauna of these areas and the Central Valley is fragmentary at best.

It is also difficult to compare the numbers of ibis reported by Grinnell et al. (1918) to those from similar unsystematic surveys in recent decades. For example, the low numbers cited above for the Los Banos area prior to 1940, when observers were also few, ranged up to 200 ibis. By contrast, when multi-observer systematic surveys of most wetland habitat at the Grasslands and Mendota WA in the 1990s found up to 3500 ibis and roost counts found up to 10,000–12,000, other single observers making occasional observations reported numbers only up to the 300–500 range (Appendix). Similarly, during studies of foraging ibis in duck clubs in the Grasslands in 1994–95, Safran's records of 49 scattered flocks with an average size of 18 birds (SE = 4.27, min. = 1, max. 183) did not even hint at the total size of the ibis population documented by roost counts.

In the post-Grinnell and Miller era, both an increase in observers and the publication of seasonal reports in *Audubon Field Notes* and its predecessors improved the documentation of ibis numbers. Still, through the 1950s and 1960s, data for most regions of the state remained too limited to reveal populations trends. An exception to this was in the Imperial Valley, where high counts of up to 3500 ibis in the late 1940s and early 1950s dropped

to the low 100s by the 1970s, when numbers appeared to reach a nadir statewide.

By far the best documented population change in wintering ibis in California was from the 1980s through the 1990s, when our compilation of ground and aerial wetland surveys, roost counts, CBCs, and anecdotal observations all showed a many-fold increase over numbers in the 1970s. Although population estimates of wintering ibis in 1994–95 were the highest yet recorded this may not necessarily have been the peak period of ibis abundance in California, given the limited prior data available. For example, the high counts of up to 3500 ibis in the Imperial Valley in the 1940s and 1950s may have rivaled those in the 1990s. In the latter period, single-observer counts (comparable to those in the earlier period) rarely exceeded 1000 birds (a count of 6000 in 1989 was exceptional; Appendix), whereas only by roost counts were 16,000 ibis found in 1994.

Causes of Recent Population Increases

We suspect that recent large increases in the wintering White-faced Ibis population in California reflect increased numbers on the breeding grounds, particularly in the western portion of the range. Despite a lack of rangewide surveys of breeding colonies, Ryder and Manry (1994) concluded that White-faced Ibis populations have increased in the West in the last two decades because of improved nesting habitat management, increased planting of alfalfa used by foraging ibis, the ban on DDT and other pesticides in the 1970s, and improved breeding success at major colonies. At Lower Klamath NWR, Siskiyou County, a large increase in nesting ibis from the 1980s to the 1990s appears to have been aided by the conversion of 1600 hectares of planted grain crops to new marshlands, since used extensively as colony sites, and changing water management practices improving ibis foraging habitat (D. Mauser pers. comm.). On a broader scale, efforts in the 1980s to enhance habitat quality and increase the extent of wetlands in California for waterfowl (Heitmeyer et al. 1989) also may have benefited wintering ibis. Fleury and Sherry (1995) reported dramatic increases in ibis and other colonial waders in Louisiana from 1949 to 1988, particularly during the last 20 years, which they attributed to an increase in acreage of crayfish aquaculture. By contrast, we know of no large increases in habitat used by ibis at the key California wintering areas at the Grasslands (T. Poole pers. comm.) or the Imperial Valley that would explain recent increases in the wintering population. In the Imperial Valley, acreage of alfalfa increased somewhat from the 1970s to the 1980s while acreage of other field crops, some of which probably were also used by ibis, decreased sharply (Figure 4).

That ibis readily shift breeding sites as fluctuating water levels affect habitat conditions makes assessment of rangewide population trends difficult. Large population increases in the 1980s and early 1990s of breeders at the western edge of the range in the Harney Basin, Oregon, and Lower Klamath NWR, California (and in eastern Idaho), may have resulted at least in part from displacement of ibis from Great Salt Lake, Utah, by flooding in the early and mid-1980s (Ivey et al. 1988, Taylor et al. 1989) or shifting among various colonies during droughts in the late 1980s and early 1990s. The key colonies in the eastern Great Basin at Great Salt Lake were reduced

80% from 1982 to 1985 by flooding (Ivey et al. 1988). Conversely, Oregon populations increased from <1000 pairs in the early 1980s to 2595 pairs in 1987 (Ivey et al. 1988), and the Lower Klamath population increased from 12 pairs in 1986 to 3900 pairs in 1994 (D. Mauser pers. comm.). These rates of increase seem too rapid to be from recruitment of locally produced young (Ivey et al. 1988). In the Lahontan Valley, Nevada, there was no unidirectional population trend in the 1980s. Instead, a population that exceeded 3000 pairs (peak 5930) in 7 of 12 years from 1979 to 1990 dropped to 0 and 450 pairs, respectively, during the extreme drought years of 1977 and 1992 (Henny and Herron 1989, L. Neel in litt.). A dearth of non-breeders remaining during these droughts suggests that birds from Nevada shifted to other areas to breed.

Limited band-recovery data also suggest that the increase in the wintering ibis population in California mirrors the western expansion and productivity of breeding ibis. The 11,462 ibis banded in the Great Basin/Intermountain West region from 1916 to 1994 produced 172 winter (Nov–Mar) recoveries (National Biological Service, Bird Banding Lab unpubl. data; Ryder 1967). California accounted for 2 of 15 recoveries from 3597 ibis banded in the

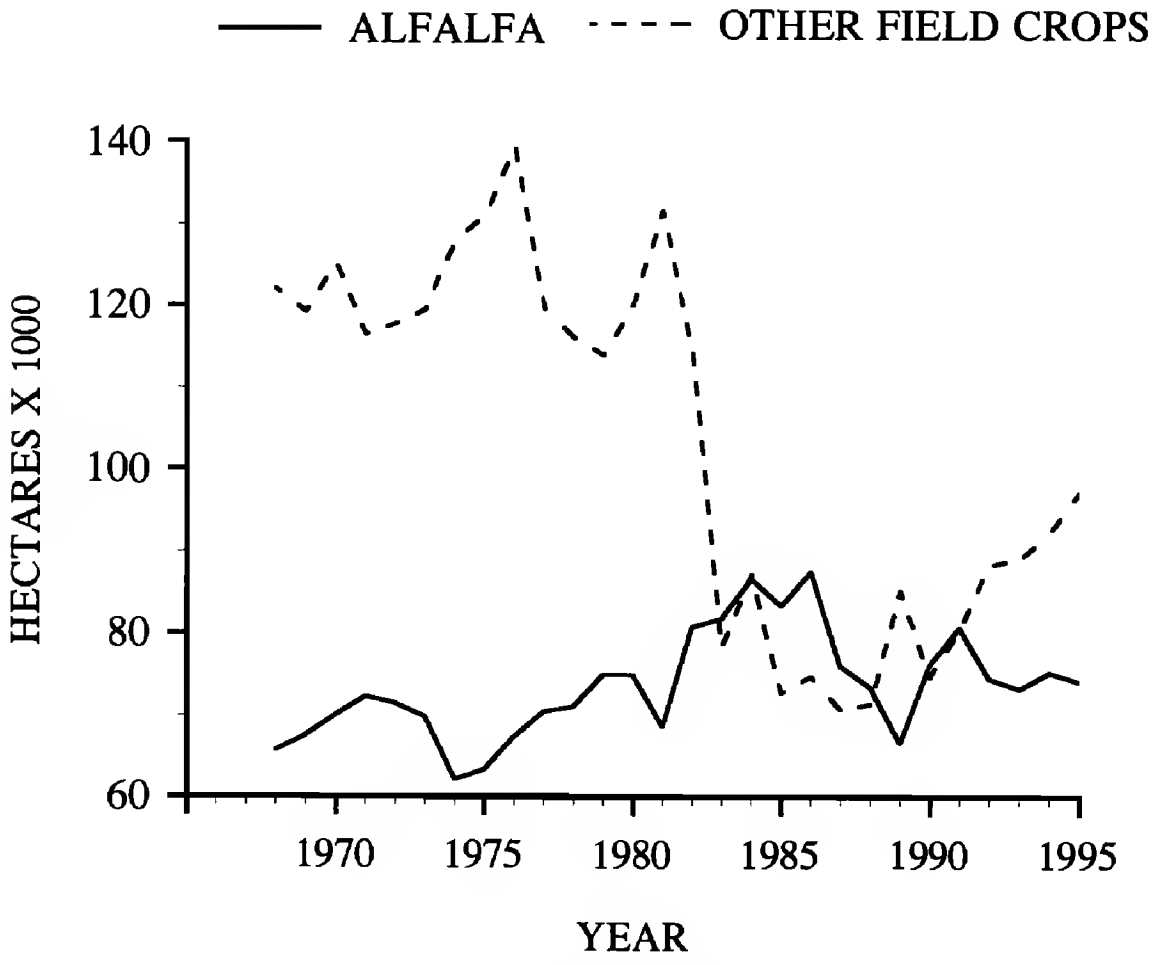

Figure 4. Acreage of irrigated alfalfa and other field crops in the Imperial Valley, Imperial County, California, 1968 to 1995. Data from Imperial Irrigation District via J. Setmire, Bureau of Reclamation.

western portion of the region (California, Oregon, Nevada) and 1 of 157 recoveries from 7865 banded in the eastern portion of the region (Idaho, Utah). Although the number of recoveries from California is too low to allow for a powerful statistical test, these data suggest that ibis wintering in California are more likely to originate from the western rather than the eastern portion of the breeding range. The small sample size of winter recoveries also suggests that many ibis wintering in the San Joaquin Valley of California may be coming from breeding colonies in Oregon or perhaps from nearby Lower Klamath NWR, California, where thousands of ibis are now breeding (banding first began in 1995; J. Hainline pers. comm.). All three winter recoveries in California were from the San Joaquin Valley (2 from Oregon colonies [1572 banded], 1 from Utah [6674 banded]). Color-banding of 1205 ibis in 1995 at various breeding sites in the western Great Basin has yielded promising preliminary results in unraveling the species' migratory pathways to wintering grounds (B. Henry and E. Kelchlin pers. comm.). As of late January 1996, of 15 winter (Nov–Jan) recoveries of ibis color-banded in the Lahontan Valley, Nevada, 10 were from California (8 from Imperial Valley, 1 from San Joaquin Valley, 1 from interior Monterey County), 3 from the Arizona side of the Colorado River at Cibola NWR, and 2 from Bosque del Apache NWR, New Mexico (Kelchlin 1996, E. Kelchlin pers. comm.). As at least six of these ibis, including adults, were banded in September, they may have represented birds from other colonies that were staging at Stillwater NWR during migration.

Habitat Use

Although our data document broad patterns of habitat use on the wintering grounds in California, there is much more to be learned about ibis foraging and roosting needs. Visual observations or radio-tracking of ibis coming to or leaving roosts would be valuable to better determine their local dispersal and habitat use patterns. Observations in the Grasslands area suggest that wintering ibis may respond opportunistically to changing food resources, particularly by shifting from managed wetlands to agricultural lands after heavy winter rains. Similarly, during extreme flooding in the Sacramento Valley in January 1995, ibis were forced from favored foraging areas (Shuford and Page pers. obs.). Detailed work has been conducted on foraging-site preferences of ibis in agricultural fields near breeding colonies in Nevada (Bray and Klebenow 1988), but little such information is available for the wintering grounds and how ibis respond to temporal changes in habitat conditions.

Threats to Wintering Ibis

Ryder and Manry (1994) reported that the size of the North American nesting population of the White-faced Ibis decreased precipitously in the 1960s and 1970s because of pesticides and loss of habitat to drought and drainage. In California, a loss of 91% of the state's wetlands (Dahl 1990), much of it prior to the 1960s (Frayer et al. 1989), must have had a great impact on both breeding and wintering populations of ibis. It is unclear to what degree an increase in agricultural habitats used by ibis has offset losses of wetlands. Nevertheless, that the increase in the number of ibis wintering in

California in the 1980s and 1990s occurred after a period of great habitat loss emphasizes the need to protect habitat that may be used intermittently by a nomadic species that is responding to habitat conditions over a broad range.

Although most organochlorine pesticides have been banned for use in the U.S. since the 1970s, White-faced Ibis are still being affected. At Carson Lake, Nevada, in 1985 and 1986, DDE accumulation affected about 40% of the breeding ibis population and lowered overall reproductive success by about 20% (Henny and Herron 1989). Investigations from 1989 to 1991 at Lower Klamath and Colusa NWRs also found high levels of DDE and eggshell thinning in ibis (S. Schwarzbach in litt.). At Colusa, at least, reproductive success was impaired, and eggshell thinning was similar to that in the DDE-contaminated colony at Carson Lake (Dileanis et al. 1992, S. Schwarzbach in litt.). Birds from these Nevada and California breeding colonies are thought to have been exposed to pesticides on the wintering grounds (Henny and Herron 1989, S. Schwarzbach pers. comm.), perhaps to DDT used recently in Mexico (Henny and Herron 1989). Between 1986 and 1990, wintering White-faced Ibis in the Imperial Valley had DDE levels in their tissues similar to those found in ibis eggs at Carson Lake, but, in contrast, appeared to accumulate DDE by foraging in agricultural fields on invertebrates that were concentrating pesticides remaining in the soil from historical, rather than recent, use (Setmire et al. 1993). Levels of DDE residues in the Imperial Valley are among the highest in the U. S. (J. Bennett pers. comm.). Comparisons of the various organochlorine compounds in ibis samples from Colusa NWR and the Imperial Valley suggest that the Colusa birds were not wintering in the Imperial Valley (S. Schwarzbach pers. comm.).

When agricultural drainage was formerly a main source of water for the Grasslands wetlands in the San Joaquin Valley, selenium accumulated to levels sufficient to cause reproductive harm to various birds (Ohlendorf et al. 1987). Since a change to an uncontaminated supply of water for the Grasslands in 1985, selenium levels have declined steadily, though concentrations in some species are still above those associated with impairment of reproduction (Hothem and Welsh 1994a, 1994b; F. L. Paveglio pers. comm.). Although agricultural fields in the area might prove to be a source of pesticide contamination, this important foraging habitat for ibis serves as a buffer from urbanization that might replace or degrade the adjacent wetland habitat upon which ibis and many other wetland species depend (Fredrickson and Laubhan 1995, Thomas Reid Associates 1995).

More work is needed in both the U. S. and Mexico to assess whether current wintering habitat is too contaminated to provide for the long-term health of ibis populations.

Monitoring

Ryder and Manry (1994) recommended long-term monitoring of ibis populations via coordinated, standardized surveys covering colonies throughout the entire breeding range. They did not make any recommendations regarding monitoring of wintering populations. We feel that population monitoring in wintering areas would complement that on the breeding grounds by identifying key wintering habitats, determining trends in winter distribution and abundance, and pinpointing areas where wintering ibis face risks to their survival.

Current methods are not adequate to monitor wintering populations of ibis. Data gathered opportunistically or by Christmas Bird Counts have only a limited ability to track trends in winter populations of ibis. Aerial surveys in the Grasslands of the San Joaquin Valley have proved valuable for detecting trends of ibis using local wetlands, but these counts give only an index of population trends for that whole region. Because prior aerial surveys were designed to monitor waterfowl populations they did not cover agricultural lands and often concentrated their efforts on zones closed to hunting, which few ibis use. Although aerial surveys could be used to monitor ibis populations, they would work best if surveys for ibis were conducted separately from those for waterfowl and all ibis habitats were covered thoroughly.

We believe that annual coordinated roost counts taken at all key ibis wintering areas over a short period would be the best method to monitor population trends of wintering ibis. Roost counts need survey only a few sites where ibis concentrate after foraging over a large area and can be conducted by relatively few people at low cost. Because White-faced Ibis are opportunistic and may shift wintering areas, local foraging areas, and roost sites over relatively short periods, to be successful monitoring efforts will also have to be opportunistic. Periodic aerial surveys might be best used to identify locations of roosts.

SUMMARY

Historical data on the distribution and abundance of the White-faced Ibis in winter in California are limited. Winter numbers declined to a low point in the 1970s, began to increase in the 1980s, and increased sharply in the early 1990s. Winter surveys in 1994–95 found at least 28,000 ibis in California, with the largest concentrations in the Sacramento Valley (2000–3000), the Grasslands of the San Joaquin Valley (8000), and the Imperial Valley (16,000). Additional surveys in 1995–96 estimated about 10,000 to 12,000 ibis in the greater Grasslands area. The wintering population in California likely increased as a byproduct of a westward shift in the abundance of breeding ibis, perhaps caused by a combination of flooding at Great Salt Lake, Utah, in the 1980s, similar shifts caused by drought conditions in the late 1980s to early 1990s, and improved habitat conditions on the breeding grounds in Oregon and northern California. Most ibis wintering in California forage in managed wetlands or agricultural fields, and private lands provide the majority of foraging habitat in all of the state's main wintering areas. Even in areas, such as the Imperial Valley, where ibis forage mostly in fields, managed wetlands are extremely important as nighttime roost sites. Ibis wintering in California remain at risk from accumulation of toxins, particularly in the Imperial Valley where they concentrate DDE residues that persist in the soil from historical use. Population monitoring on the wintering grounds is needed to identify key wintering areas, assess trends in wintering populations, and pinpoint areas where wintering ibis may face risks to their survival.

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LITERATURE CITED

Belding, L. 1905. *Plegadis guarana* [sic] at Stockton, Cal. Condor 7:112.

Bray, M. P., and Klebenow, D. A. 1988. Feeding ecology of White-faced Ibis in a Great Basin Valley, USA. Colonial Waterbirds 11: 24–31.

Dahl, T. E. 1990. Wetland losses in the United States 1780's to 1980's. U. S. Fish & Wildl. Serv., Washington, D. C. Available from USFWS, 911 NE 11th St., Portland, OR 97232-4181.

Dileanis, P. D., Sorenson, S. K., Schwarzbach, S. E., and Maurer, T. C. 1992. Reconnaissance investigation of water quality, bottom sediment, and biota associated with irrigation drainage in the Sacramento National Wildlife Refuge Complex, California, 1988–89. U.S. Geol. Surv. Water-Resources Investigations Rept. 92-4036, USGS, Federal Bldg., Rm. W-2233, 2800 Cottage Way, Sacramento, CA 95825.

Fleury, B. E., and Sherry, T. W. 1995. Long-term population trends of colonial wading birds in the southern United States: The impacts of crayfish aquaculture on Louisiana populations. Auk 112:613–632.

Frayer, W. E., Peters, D. D., and Pywell, H. R. 1989. Wetlands of the California Central Valley: Status and trends. U. S. Fish & Wildl. Serv., 911 NE 11th St., Portland, OR 97232-4181.

Fredrickson, L. H., and Laubhan, M. K. 1995. Land use impacts and habitat preservation in the Grasslands of western Merced County, California. Grasslands Water District, 22759 S. Mercey Springs Rd., Los Banos, CA 93635.

Garrett, K., and Dunn, J. 1981. Birds of Southern California: Status and Distribution. Los Angeles Audubon Soc., Los Angeles.

Grinnell, J. 1923. Observations upon the bird life of Death Valley. Proc. Calif. Acad. Sci., 4th ser. 13:43–109.

Grinnell, J., Bryant, H. C., and Storer, T. I. 1918. The Game Birds of California. Univ. Calif. Press, Berkeley.

Grinnell, J., Dixon, J., and Linsdale, J. M. 1930. Vertebrate natural history of a section of northern California through the Lassen peak region. Univ. Calif. Publ. Zool. 35:1–594.

Grinnell, J., and Miller, A. H. 1944. The distribution of the birds of California. Pac. Coast Avifauna 27.

Harris, S. W. 1991. Northwestern California Birds: A Guide to the Status, Distribution, and Habitats of the Birds of Del Norte, Humboldt, Trinity, Northern Mendocino, and Western Siskiyou Counties, California. Humboldt State Univ. Press, Arcata.

Harwell, C. A. 1941. Birds of the Sutter Buttes region. Gull 23 (4): 11–13.

Heermann, A. L. 1859. Report upon the birds collected on the survey, in Reports of Explorations and Surveys, To Ascertain the Most Practicable and Economical Route for a Railroad from the Mississippi River to the Pacific Ocean, pp. 29–80. Vol. X, Part IV, No. 2. Beverley Tucker, Washington.

Heitmeyer, M. E., Connelly, D. P., and Pederson, R. L. 1989. The Central, Imperial, and Coachella valleys of California, in Habitat Management for Migrating and Wintering Waterfowl in North America (L. M. Smith, R. L. Pederson, and R. M. Kiminski, eds.), pp. 475–505. Tex. Tech. Univ. Press, Lubbock.

Henny, C. J., and Herron, G. B. 1989. DDE, selenium, mercury, and White-faced Ibis reproduction at Carson Lake, Nevada. J. Wildl. Mgmt. 53:1032–1045.

Holterhoff, G. 1885. The Glossy Ibis and Avocet at San Diego, Cal. Auk 2:311–312.

Hothem, R. L., and Welsh, D. 1994a. Duck and shorebird reproduction in the Grasslands of Central California. Calif. Fish Game 80:68–79.

Hothem, R. L., and Welsh, D. 1994b. Contaminants in eggs of aquatic birds from the Grasslands of Central California. Arch. Envir. Contam. Toxicol. 27:180–185.

Ivey, G. L., Stern, M. A., and Carey, C. G. 1988. An increasing White-faced Ibis population in Oregon. W. Birds 19:105–108.

Jehl, J. R., Jr. 1994. Changes in saline and alkaline lake avifaunas in western North America in the past 150 years, in A century of avifaunal change in western North America (J. R. Jehl, Jr. and N. K. Johnson, eds.), pp. 258–272. Studies Avian Biol. 15.

Johnson, S., Haslam, G., and Dawson, R. 1993. The Great Central Valley: California's Heartland. Univ. California Press, Berkeley.

Kelchlin, E. P. 1996. The breeding ecology of White-faced Ibis (*Plegadis chihi*) in the Carson River Basin, Nevada. Final Progress Report for the 1995 field season to U. S. Fish & Wildl. Serv., Stillwater NWR, P. O. Box 1236, Fallon, NV 89406.

Kennerly, C. B. R. 1859. Report on birds collected on the route, in Reports of Explorations and Surveys, To Ascertain the Most Practicable and Economical Route for a Railroad from the Mississippi River to the Pacific Ocean, pp. 19–35. Vol. X, Part VI, No. 3. Beverley Tucker, Washington.

Lehman, P. E. 1994. The Birds of Santa Barbara County, California. Vertebrate Museum, Univ. Calif., Santa Barbara.

Long, M. C. 1993. Birds of Whittier Narrows Recreation Area, Los Angeles County, California. Whittier Narrows Nature Center Assoc., 1000 North Durfee Ave., South El Monte, CA 91733.

Ohlendorf, H. M., Hothem, R. L., Aldrich, T. W., and Krynitsky, A. J. 1987. Selenium contamination of the Grasslands, a major California waterfowl area. Sci. Total Envir. 66:169–183.

Remsen, J. V., Jr. 1978. Bird species of special concern in California: An annotated list of declining or vulnerable bird species. Nongame Wildl. Invest., Wildl. Mgmt. Branch Admin. Rep. 78-1, Calif. Dept. Fish & Game, Sacramento.

Roberson, D. 1985. Monterey Birds: Status and Distribution of Birds in Monterey County, California. Monterey Peninsula Audubon Soc., Carmel.

Rosenberg, K. V., Ohmart, R. D., Hunter, W. C., and Anderson, B. W. 1991. Birds of the Lower Colorado River Valley. Univ. Ariz. Press, Tucson.

Ryder, R. A. 1967. Distribution, migration and mortality of the White-faced Ibis (*Plegadis chihi*) in North America. Bird-Banding 38:257–277.

Ryder, R. A., and Manry, D. E. 1994. White-faced Ibis (*Plegadis chihi*), in The Birds of North America (A. Poole and F. Gill, eds.), No. 130. Acad. Nat. Sci., Philadelphia.

Setmire, J. G., Schroeder, R. A., Densmore, J. N., Goodbred, S. L., Audet, D. J., and Radke, W. R. 1993. Detailed study of water quality, bottom sediment, and biota associated with irrigation drainage in the Salton Sea area, California, 1988–90. U. S. Geol. Surv. Water-Resources Invest. Rept. 93-4014. USGS, Federal Bldg., Rm. W-2233, 2800 Cottage Way, Sacramento, CA 95825.

Taylor, D. M., Trost, C. H., and Jamison, B. 1989. The biology of the White-faced Ibis in Idaho. W. Birds 20:125–133.

Thelander, C. G., and Crabtree, M. 1994. Life on the Edge: A Guide to California's

Endangered Natural Resources. Vol. 1: Wildlife. Biosystems Books, Santa Cruz, CA.

Thomas Reid Assoc. 1995. Grassland Water District land planning guidance study. Grasslands Water District, 22759 S. Mercey Springs Rd., Los Banos, CA 93635.

Trapp, J. L. 1995. Migratory nongame birds of management concern in the United States: The 1995 list. Office of Migratory Bird Management, U. S. Fish & Wildl. Serv., Washington, D. C.

U. S. Fish & Wildlife Service. 1985. White-faced Ibis: Management guidelines Great Basin population. U. S. Fish & Wildl. Serv., 911 NE 11th St., Portland, OR 97232-4181.

U. S. Fish & Wildlife Service. 1990. Central Valley Habitat Joint Venture Implementation Plan: A Component of the North American Waterfowl Management Plan. U. S. Fish & Wildl. Serv., 2233 Watt Ave., Suite 375, Sacramento, CA 95825-0509.

U. S. Fish & Wildlife Service. 1991. Endangered and threatened wildlife and plants; Animal candidate review for listing as endangered or threatened species, proposed rule. Federal Register 56:58804–58836.

Unitt, P. 1984. The Birds of San Diego County. San Diego Soc. Nat. Hist. Memoir 13.

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APPENDIX

Winter (Nov–Mar) Records of the White-faced Ibis in California, 1908–09 to 1995–96, Other Than Those Listed or Summarized in the Text

Great Basin Desert

Lassen County: Bass Hill WA, near Standish, 21 Dec 1995 (T. D. Manolis).

Interior Coast Range

Lake County: Anderson Marsh, 1, 2 Jan 1981 (AB 35:331); Clear Lake CBC, 1, 4 Jan 1981 (AB 35:705); 3 km S of Lower Lake, 1, 5 Feb 1981 (AB 35:331, NB); all records probably pertain to the same bird.

Sacramento Valley

Glenn County: 11 km S of Willows, 1, 16–18 Mar 1955 (AFN 9:354, NB); Willows, 1, 16 Mar 1976 (AB 30:761); Sacramento NWR, 5 individual records, Dec–Jan 1965–66 (AFN 20:454); present, 12 Feb 1973; 1, 16 Mar 1976 (NB); 11, 4 Nov 1978 (AB 33:210); 1–3, Nov 1982; 33, 31 Jan 1984; 40, winter 1983–84; 25, 3 Jan 1985; 50, 22 Nov 1986; McGowan Ranch, Biggs–Afton Rd., 25, 2 Dec 1990 (NB).

Butte County: 1.6 km E of Butte Creek at Gridley–Colusa Hwy, 9, 24 Nov 1987; Gray Lodge WA, 1, 17 Mar 1981 (NB); 3, 20 Dec 1986 (AB 41:322); 2, 27 Nov 1987 (NB); 80, 3 Dec 1988 (B. E. Deuel); 60, 1 Dec 1990 (E. C. Beedy); 4, 26 Dec 1991; 1, 4 Dec 1993; 1, 28 Dec 1993 (B. E. Deuel); 65, 4 Dec 1991 (NB); 6, 28 Dec 1995 (E. C. Beedy); W of Biggs, 1, 14 Nov 1993 (T. D. Manolis); Little Dry Creek Unit, Upper Butte Basin WA, 7, 16 Nov 1989 (J. H. Snowden); 400, 5 Dec 1990 (B. E. Deuel); SW of Dayton, 110+, 2 Nov 1995 (J. H. Snowden).

Colusa County (other records for Colusa and Delevan NWRs available via Sacra-

mento NWR complex): Delevan NWR, 3, 3 Nov 1973 (NB); 11, 16 Mar 1979 (AB 33:803); 45, 11 Nov 1982; 80, 27 Jan 1984; 60, 28 Jan 1985; 50–60, winter 1986–87; 12, 13 Feb 1991 (NB); Colusa NWR, 30, winter 1981–82; 75, 19–22 Jan 1983; 100, 29 Dec 1983 (NB); 125, 1 Dec 1984 (AB 39:97); 225, 17 Dec 1985 (AB 40:325); 50–60, winter 1986–87; 10, 26 Nov 1987; 3, 11 Dec 1988; 8, 11 Nov 1989 (NB); 40, 24 Nov 1990 (E. C. Beedy); 23, 23 Dec 1990 (NB); 60, 28 Nov 1994 (E. C. Beedy); Colusa and Delevan NWRs, 30, winter 1981–82 (AB 36:326); 50–60, winter 1986–87 (AB 41:322); Butte Creek on Gridley–Colusa Hwy, 13, 5 Nov–7 Dec 1986; 300, Colusa–Grimes Rd., 24 Nov 1990 (NB); Hwy 20 near Colusa, 500, 10 Nov 1991 (AB 46:143, NB); 50, 24 Jan 1995 (NB); Hwy 20 × Hwy 45, 190, 25 Jan 1995 (T. D. Manolis); rice field N of Laux Rd., 700, 6 Jan 1995 (fide M. Wolder/USFWS); I-5 near Maxwell, 60, 3 Dec 1995 (E. C. Beedy).

Yuba County: District 10, about 11 km N of Marysville, 60–70, 14 Nov 1993 (T. D. Manolis); 140, 20 Feb 1994 (D. Shuford); 155, 22 Nov 1994 (T. D. Manolis).

Sutter County: Pennington Rd., 30–40, 25 Nov 1990; Sutter NWR, 4, 24 Dec 1990; 21, 29 Jan 1991; 14, 4 Dec 1991; 2, 3 Jan 1993 (NB).

Yolo County: Univ. Calif. Davis, 1 flyover, 30 Nov 1972 (NB); 4, 18 Dec 1993 (NASFN 48:856, E. C. Beedy pers. comm.); Rd. 155, 6, 29 Mar 1992; Yolo Bypass at Rd. 25, 9, 31 Jan 1993 (NB); Laurel G duck club, Yolo Bypass, 12, 22 Feb 1992; 15, mid-Jan 1993 (E. C. Beedy).

Sacramento–San Joaquin River Delta

Sacramento County: Brannan Island, 11, 30 Dec 1992 (NB); flying over Sacramento Metro Airport. 19, 3 Jan 1995 (T. D. Manolis); Consumnes River Preserve, 2, 26 Mar 1994 (NB).

San Joaquin County: Staten Island, 2, 19 Dec 1993; Bouldin Island, 5, 24 Dec 1990; 22, 31 Dec 1990; 1, 5 Jan 1991; 75, 21 Nov 1992 (NB).

Contra Costa County: Holland Tract, 1–7, 7–9 Dec 1994; Webb Tract, 20–25, 25 Jan 1995 (NB).

Suisun Marsh

Solano County: Grizzly Island WA, 6, 23 Dec 1975 (AB 30:761); Joice Island Unit, Grizzly Island WA, 1, 26 Nov 1991 (NB).

Contra Costa County: W. Pittsburg, 9, 18 and 25 Dec 1982 (AB 37:333, 749; NB).

San Joaquin Valley

Stanislaus County (all H. Reeve unless otherwise noted): along Hwy 132, 84, 26 Mar 1978 (NB); near Newman, 145, 16 Mar 1985; valley floor in SW part of county, 1, 9 Feb 1986; Mapes Ranch, 5, 23 Mar 1986; 7, 17 Dec 1989; River Rd. NE of Newman, 20, 23 Mar 1986; 15, 29 Nov 1987; W. Main St., 27, 31 Mar 1986; 125, 26 Nov 1988; 3–6, 13–14 Jan 1989; 60, 12 Mar 1989; fields at Modesto sewage ponds, 1, 16 Feb 1987; 1, 27 Jan 1989; 2 flybys, 3 Dec 1989; 40, 16 Dec 1989; Jennings Rd., 1, 17 Feb 1989; Faith Ranch, 28, 30 Dec 1991.

Merced County: sites unspecified, 2, 9 Nov 1908 (CAS 12687, 12832); 1, 26 Nov 1908 (CAS 12834); 1, 30 Nov 1908 (CAS 12833); 1, 12 Dec 1908 (CAS 12831); 1, 4 Feb 1909 (CAS 13220); 1, 6 Feb 1909 (CAS 13219); 5, 18 Feb 1909 (CAS 13218, 13221–13224); Kesterson NWR, 14, 23 Dec 1974 (NB); Los Banos WA, 10, 14 Dec 1935; 34, 10 Jan 1946 (W. Minturn); 16, 11 Dec 1955; 20, 30 Mar 1963; 12, 13 Feb 1965 (NB); 100, 23 Jan 1966 (AFN 20:454); 27, 24 Mar 1968 (AFN 22:473); 160, 2 Feb 1969 (AFN 23:515, NB); 200, winter 1969–70 (AFN 24:90, 534); 140, 16 Feb 1974 (NB); 60, 12 Feb 1977 (AB 31:368); 120, 19 Feb 1978 (NB); 160, 3 Feb 1979 (AB 33:309); 49, 27 Jan 1980; 40–50, 7 Feb 1981; 50, 5 Feb 1984; 6, 6 Dec 1984 and 25 Feb 1985; 130, 1 Mar 1987; 300, 10 Feb 1990 (NB); Los Banos CBC, 21, 30 Dec 1969 (AFN 24:443); "Los Banos Road," 2, 31 Jan 1942; 1, 10 Jan 1946; 16, 28 Mar 1947 (W. Minturn); near Gustine, 2, 3

Nov 1967 (AFN 22:84); 300, 1 Mar 1983 (AB 37:333); 60, 14 Mar 1987 (NB); San Luis NWR, 200, 6 Dec 1967 (AFN 22:473); 250, 15 Dec 1971; 40, 10 Dec 1972; 2, 13 Mar 1982 (NB); San Luis NWR and Los Banos WA, up to 250, winter 1971–72 (AB 26:650); Los Banos area, 1, 25 Nov 1911 (MVZ 22085); 1, 4 Dec 1911 (MVZ 22086); 1, 23 Dec 1911 (MVZ 22087); 1, 8 Mar 1939 (MVZ 91174); 23, 24 Mar 1962 (NB); 80, 26 Feb 1967 (AFN 21:453); 200, winter 1970–71 (AB 25:621); 122, 22 Feb 1972; 35, 13 Mar 1975 (NB); 56, 25 Jan 1976 (AB 30:761); 30, 11–25 Mar 1978; 130, 25 Feb 1980; 20, 4 Feb 1981 (NB); 78, 29 Dec 1981 (AB 36:326); 60, 28 Feb 1982; Los Banos to Merced NWR area, 30, 21 Feb 1981; Merced NWR, 54, 2 Dec 1982; 300, 29 Nov 1983 (NB); 220, 24 Nov 1984 (AB 39:97); 36, 15 Dec 1986; present, 22 Mar 1988; Santa Fe Grade, 30, 4 Feb 1973; 1, 23 Nov 1975; 12, 5 Feb 1977; 1, 20 Nov 1977; 65, 25 Jan 1980; 32, 4 Jan 1981; 30, 3 Mar 1985; 30, 6 Feb 1987; 100–130, 9 Jan–6 Feb 1988; 250–500, 23 Feb 1991; 80, 9 Nov 1991; 40, 21 Nov 1994 (NB); South Dos Palos, 6, 18 Feb 1939; 3, 23 Jan 1946 (W. Minturn); Dos Palos, 1, 10 Jan 1985; Sandy Mush Rd., 50, 19 Nov 1986; Volta WA, 150, 24 Nov 1971 (NB).

Fresno County: 3 mi S of Dos Palos, Merced County, 2, 7 Dec 1935; Mendota Pool, 12, 28 Mar 1936; Herminghaus Ranch, S of Mendota Pool, 2, 11 Feb 1939 (W. Minturn); Mendota WA, 1, 26 Dec 1974 to 9 Feb 1975; 250, 21 Feb 1985 (NB).

Kings, Tulare, and Kern counties: mouth of Tule River, 3, 16 Nov 1940; Tulare Lake, 4, 4 Dec 1927 (W. Minturn); 1, winter 1941–42 (CAS 58375); 1, 23 Mar 1946 (W. Minturn); Tulare Lake basin, 1, Nov 1957 (NB).

Tulare County: Creighton Ranch Preserve, 3, 3 Dec 1982 to 19 Jan 1983 (NB); Pixley NWR, 6, 6 Dec 1993; Alpaugh Irrigation District Reservoir, 20, 27 Mar 1995 (Kern NWR waterfowl survey).

Kern County (except as noted, all records from Kern NWR aerial waterfowl surveys): Goose Lake Bottoms, 10, 4 Nov 1980; 5, 5 Dec 1991; 2, 4 Feb 1992; 17, 3 Mar 1994; Kern NWR, 3, 23 Jan and 11 Feb 1981; Kern–Wasco duck clubs near Kern NWR, 15, 3 Nov 1989 and 6 Mar 1990; 31, 4 Nov 1991; 15, 5 Dec 1991; 20, 8 Jan 1992; 2, 4 Feb 1992; 1, 6 Dec 1993; 1, 4 Mar 1993; 30, 10 Jan 1994; 5, 3 Mar 1994; 5, 15 Nov 1994; 6, 8 Dec 1994; 4, 13 Jan 1995; 1, 15 Feb 1995; 1, 27 Mar 1995; duck clubs near Arvin, 10, 3 Nov 1989; 30, 4 Nov 1992; 1, 1 Feb 1993; 5, 1 Feb 1993; 10, 3 Mar 1994; 55, 8 Dec 1994; 50, 13 Jan 1995; Tenneco sewage overflow ponds, SW of jct. I-5 × Hwy 119, 40, 5 Dec 1991; 50, 8 Jan 1992; Bakersfield sewage ponds, 1, 21 Mar 1994; Kern NWR, 1, 16 Mar 1984 (M. O. Chichester); SW of Kern NWR, 2, 22 Feb 1985 (M. O. Chichester); Kern River groundwater recharge ponds W of Bakersfield, 4, 19 Nov 1995 (M. O. Chichester).

Southern California Interior and Deserts

Kern County: China Lake sewage ponds, 2, 24 Nov 1991 (D. V. Blue, M. O. Chichester).

Inyo County: Death Valley National Monument CBC, 1, 22 Dec 1965 (AFN 20:366).

Los Angeles County: near Lancaster, present, 11 Nov 1979 (Garrett and Dunn 1981); Piute Ponds, 2, 3 Dec 1993 (K. Garrett, M. San Miguel).

San Bernardino County: Chino Basin, 20, 1 Dec 1990 (M. A. Patten).

Riverside County: Corona, 1, winter 1952–53 (AFN 7:234); duck clubs, San Jacinto Valley, 1, 29 Jan 1994 (B. Carlson et al.); north end of Salton Sea, 4, 20 Mar 1987; 25, 2 Jan 1989; 2, 17 Dec 1989; 120, 29 Dec 1990; 25, 2 Feb 1991; 21, 15 Dec 1991; 15, 2 Jan 1994; 30, 4 Dec 1994; 25, 21 Jan 1995; Lake Norconian, 1, 23 Nov 1989; Hidden Valley WA, 30, 11 Feb 1990; Santa Ana R. Valley, 12, 19 Dec 1992; Oasis Station, 10, 26 Jan 1991; 40, 22 Jan 1994 (M. A. Patten); Prado Basin, 375, 28 Nov 1995; 180, 8 Jan 1996 (J. Pike).

Imperial County: Imperial Valley, 1000, 28 Dec 1947 (AFN 2:149); numbers "far

below normal," winter 1962–63 (AFN 17:357); "flocks of up to 50," winter 1966–67 (AFN 21:457); 1, 20 Nov 1988; 2, 28 Jan 1989; 30, 3 Nov 1990; 25, 18 Dec 1993; 150, 29–30 Jan 1994; 12, 13 Feb 1994; 150, 11 Dec 1994; 2000, 11 Jan 1995 (M. A. Patten); Seeley, 275, 9 Dec 1956 (AFN 11:290); 450, 14 Jan 1983 (AB 37:337); near Brawley, 6000, 29 Jan 1989 (AB 43:365); 57, 20 Mar 1987; 150, 27 Jan 1990; Fig Lake, 75, 29 Dec 1994 (M. A. Patten); Salton Sea, 1, 6 Jan 1945 (LACM 86530); 1, 29 Dec 1945 (SBCM M13); 300, winter 1948–49 (AFN 3:185); numbers down, winter 1953–54 (AFN 8:269); 1, 27 Nov 1977 (SBMNH 4319); 2, 12 Nov 1978 (SBMNH 1735, 4268); Ramer Lake, 2000 at roost, winter 1950–51 (AFN 5:226); 50, 19 Feb 1955 (AFN 9:285); 70, 13 Jan 1962 (AFN 16:364); Salton Sea NWR, 50, 25 Nov 1960 (AFN 15:75); vicinity Salton Sea NWR, Unit 1, 35, 20 Nov 1979 (P. Unitt); south end of Salton Sea, 3500, winter 1952–53 (AFN 7:234); 34, 27 Dec 1955 (AFN 10:281); "quite common," winter 1969–70 (AFN 24:538); 100, 8 Jan 1977 (AB 31:373); 3, 1 Feb 1987; 75, 22 Dec 1987; 100, 17 Jan 1988; 200, 23 Jan 1988; 1, 11 Nov 1988; 50, 24 Dec 1988; 30, 10 Dec 1989; 125, 21 Dec 1989; 94, 21 Nov 1992; 32, 22 Dec 1992; 250, 6 Feb 1993; 30, 29 Dec 1993; 25, 20 Dec 1994 (M. A. Patten); Salton Sea (south) CBC, 2, 31 Dec 1965 (AFN 20:377); 15, 28 Dec 1968 (AFN 23:423); 4, 28 Dec 1969 (AFN 24:453); near Sheldon Reservoir, 7 km NW Imperial, 250, 30 Jan 1988; duck club 5 km NE Imperial, 2000, 30 Dec 1988 (P. Unitt).

Coastal California

Humboldt County: School Rd., McKinleyville, 1, 6 Nov 1988 (NB); Humboldt County, fall records through 7 Nov (Harris 1991).

Napa County: 1, 24–28 Jan 1996, Skaggs Island Rd. (NB).

Alameda County: Fremont, 31 circling, 15 Feb 1970 (AFN 24:534).

San Mateo County: Pescadero Marsh, 1, 14 Dec 1985 (AB 40:325); Half Moon Bay, 1, 28 Dec 1985 (AB 40:325).

Santa Cruz County: Pajaro River mouth, 2, 2 Jan 1991 (NB); Harkins Slough, 1–2, 16–26 Mar 1993 (R. Merrill); 4–6, 12–27 Dec 1993 (D. E. George); 1–2, 1–4 Jan 1995, on Moss Landing CBC (NASFN 49:192,

808; fide D. L. Suddjian); College Lake, 2, 1 Jan 1994, on Moss Landing CBC (NASFN 48:836, D. L. Suddjian).

Monterey County (all records from Roberson 1985 or D. Roberson in litt.; includes all Moss Landing CBC records): Moss Landing/Elkhorn Slough vicinity, 1, 14 Aug–25 Dec 1953 (probably the same bird at McClusky Slough, 19 Nov 1953); 5, 20 Mar 1982; 1, 1 Jan–25 Feb 1984 (Kirby Park); 1, 30 Oct 1988–4 Jan 1989; 1–2, 20 Aug–3 Nov 1990; 1, 12 Dec 1990 (possibly one of the previous birds); 1, 1 Jan 1992 (Packard Ranch); 1–2, 16 Oct–24 Dec 1992 (Zmudowski State Beach); 1, 12 Dec 1992; 1, 24 Dec 1992 (Packard Ranch, possibly one of the preceding individuals); 5, 7 Feb 1993 (Packard Ranch); up to 7, 14 Nov 1993–25 Feb 1994 (groups at Moss Landing WA and adjacent Packard Ranch and Moro Cojo Slough and adjacent Castroville ponds); 1–2, 27 Mar–9 May 1994 (Moonglow Dairy); 1, 19 Nov 1994 (Moonglow Dairy); 1–2, 11 Feb–23 Apr 1995 (Moonglow Dairy); 1, 27 Dec 1995–29 Feb+ 1996 (Moonglow Dairy); San Juan Grade, Salinas, 1, 6 Feb 1983; 1, 19 Feb 1996; Salinas River mouth, 1–3, 17 Sep–8 Dec 1990; Crespi Pond, Pt. Pinos, 1, 2–5 Jan 1993; King City vineyard, 5, 21 Jan–1 Feb 1996.

Southern California coast (as whole): flocks of up to 9, winter 1963–64 (AFN 18:386); "a few," winter 1966–67 (AFN 21:457); a few in coastal Ventura, Orange, and San Diego counties, winter 1968–69 (AFN 22:477).

San Luis Obispo County: Laguna Lake, 13 Oct–11 Nov 1974 (fide T. M. Edell); Villa Creek, 1, 15 Oct 1979–21 Apr 1980 (T. M. Edell); Los Osos Valley, 1, 27 Dec 1989 (AB 44:327, D. Elmendorf); upper Morro Bay estuary, 10–12, 6 Nov 1990 (D. Stinson).

Santa Barbara County: Goleta, on Santa Barbara CBC, 1, 30 Dec 1967 (AFN 22:396, Lehman 1994); Goleta, 1, Oct 1977–Mar 1978 (AB 32:398, Lehman 1994); 2, 15–20 Feb 1984; Santa Barbara, 1, 11 Nov 1978–10 Jan 1979 (Lehman 1994); Santa Ynez River mouth, 1, 1 Dec 1988–3 Feb 1989 (Lehman 1994, AB 43:1149); 1, 8 Feb 1994; Lake Cachuma, 1–2, 1 Nov 1991–17 Feb 1992; 1, 3 Nov 1992 (Lehman 1994); near Santa Maria, 1, 28 Jan 1995 (D. Quesenberry).

Ventura County: Pt. Mugu area, 1, 19 Jan 1948 (AFN 2:149); 1, 15 Feb 1962 (AFN 16:364); small group, winter 1962–63 (AFN 17:357); 3–8, 11–18 Jan 1964; 6, 29 Jan 1967; 7, 28 Jan 1968; 1–3, Jan 1969 (SBMNH files); present, winter 1969–70 (AFN 24:538); 15, 24 Jan 1971; 12, 28 Nov 1971 (SBMNH files); 1, 5 Dec 1971 (LACM 85222); 1, 12 Dec 1978 (fide D. DesJardin); 8–10, 2 Feb 1974 (SBMNH files); up to 85, through 22 Nov 1980 (AB 35:225, fide D. DesJardin); 40, 1 Nov 1981 (fide D. DesJardin); 37, 4 Mar 1996 (D. DesJardin); Mugu Lagoon, 16, 15 Dec 1992 (W. Wehtie et al.); near Saticoy, 15+, 9 Feb 1985 (fide D. DesJardin); 4, 18 Feb 1996 (D. DesJardin); Santa Clara River estuary, 1, 1 Nov 1970 (SBMNH files); 25, 4 Feb 1986 (fide D. DesJardin); Sespe WA CBC, 66, 3 Jan 1988 [AB 42:1138 (probably from Santa Clara River Valley near Fillmore, K. Garrett pers. comm.)].

Los Angeles County: Playa del Rey, 1, 5 Jan 1953 (AFN 7:234); El Monte, 3, 12 Nov 1988 (AB 43:167); Whittier Narrows, El Monte, 2, 1 Dec 1991–29 Jan 1992 (Long 1993).

Orange County: Bolsa Chica, 1, 14 Feb 1949 (AFN 3:185); 1, 29 Mar 1956 (AFN 10:363); 1, 9 Nov 1957 (AFN 12:58); 2, 4 Feb 1985 (fide D. Willick); Upper Newport Bay, 1–2, 21 Feb and 28 Mar 1959 (AFN 13:321); Upper Newport Bay, 8, 28 Jan 1962 (AFN 16:364); Upper Newport Bay, small group, winter 1962–63 (AFN 17:357); 21, 18 Dec 1990 (fide D. Willick); San Joaquin Marsh, Irvine, 8, 16 Feb 1981; 1, 15 Jan–19 Feb 1983; 2, 28 Dec 1984–"Mar" 1985; 1, 5 Feb 1987 (fide D. Willick); 2, 24 Jan 1988 (M. A. Patten); 1, 5–11 Feb 1988; 10, 4 Mar 1990; 1, 4 Nov 1990 (fide D. Willick); 6–11, Dec 1994–Feb 1995 (fide J. Pike); Corona del Mar, 30 flying N along shore, 5 Jan 1984; Fountain Valley, Santa Ana River, 2, 21 Feb–"Mar" 1988; 14, 31 Jan–24 Feb 1990; 1, 15 Dec 1991; San Diego Creek, Irvine, 2, 12 Dec 1990; 1, 12 Dec 1991; Anaheim, up to 20, 20 Dec 1990–"Feb" 1991 (fide D. Willick).

San Diego County: San Diego area, 3, 29 Dec 1956 (AFN 11:290); Carlsbad, 1, Jan–Feb 1962 (AFN 16:364); Buena Vista Lagoon, small group, winter 1962–63 (AFN 17:357); San Diego CBC, 2, 2 Jan 1966 (AFN 20:378); Oceanside–Vista–Carlsbad CBC, 2, 30 Dec 1961 (AFN 16:284); 3, 31 Dec 1962 (AFN 17:280); 2, 28 Dec 1963 (AFN 18:311); 20, 30 Dec 1966 (AFN 21:370); 3, 30 Dec 1967 (AFN 22:388); 13, 28 Dec 1968 (AFN 23:417); Santa Margarita River mouth, small group, winter 1962–63 (AFN 17:357); present, winter 1968–69 (AFN 23:520); present, winter 1969–70 (AFN 24:538); San Elijo Lagoon, present, winter 1969–70 (AB 24:538); 1, 17 Nov 1991 (R. Patton et al.); 4, 18 Nov 1993 (R. Patton, B. Foster); Oceanside, present, winter 1970–71 (AB 25:627); 2, winter 1974–75 (AB 29:741); 35, winter 1976–77 (AB 31:373); Guajome Lake (Oceanside–Vista–Carlsbad CBC), 3, 26 Dec 1987 (P. Unitt); San Luis Rey River Valley between Oceanside and Bonsall, 45, 1 Jan 1979; 30, 28 Dec 1980 (Unitt 1984); 27, 9 Mar 1988 (P. Unitt); Tijuana R. mouth, 1, 19 March 1966 (Unitt 1984); Tijuana R. Valley, 4, 17 Dec 1983 (on San Diego CBC, P. Unitt); 12, 3 Nov 1985 (P. Unitt); 3, 8 Dec 1990 (M. A. Patten); Lake Hodges, 40, 7 Nov 1995; 72, 9 Nov 1995; 160, 16 Nov 1995; 40, 5 Dec 1995; 65, 12 Jan 1996; 40, 18 Feb 1996 (R. L. Barber); Mission Valley, 1, 3 Feb–7 Apr 1991; San Dieguito River estuary (Rancho Santa Fe CBC), 10, 16 Dec 1994 (P. Unitt).

FIRST RECORD OF A LANCEOLATED WARBLER IN CALIFORNIA

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On 11 September 1995, on Southeast Farallon Island, 42 km west of San Francisco, California, we found and banded a Lanceolated Warbler (*Locustella lanceolata*), the first recorded in the state.

Strong northwest winds characterized the weather of the week preceding 11 September. The morning of 9 September brought diminished southeast winds and high cloud cover. At approximately 1540 on 11 September, Hickey and Capitolo were censusing birds near the east landing of the island with the intention of catching any unbanded birds. Hickey spotted a small, brown bird scampering like a mouse to hide under the dead vegetation near a mist-net. She slowly approached the bird as it scurried short distances. At this time, Capitolo saw it dart into the opening of an auklet burrow, after which Hickey successfully flushed the bird into the net. Hickey and Capitolo had no previous experience with the genus *Locustella* and were unable to identify the bird at the time of capture.

We identified the bird as a *Locustella* by using Bruun and Singer (1970), then telephoned Peter Pyle and Keith Hansen for assistance in identifying the bird to species. We used plumage criteria, measurements, and wing formula information from Svensson (1992) to distinguish the bird as *L. lanceolata*. We took all appropriate measurements, wrote a detailed description, and sketched key plumage features. After photographing the bird, we pulled three undertail coverts and released it. Documentation has been provided to the California Bird Records Committee, and the undertail coverts have been deposited at the California Academy of Sciences, San Francisco (accession number 5107).

We resighted the bird the following morning around 1100 near the two houses on the southwest side of the island. Capitolo inadvertently flushed the bird and saw it fly and land on the ground under the bush mallow (*Lavatera*) around the houses, giving one loud, sharp chip. The bird also gave this call once in the banding lab. Hickey and Capitolo saw it preening at a distance of 10 m in good lighting. All three of us then observed the bird fly low to the ground for approximately 25 m when its brown, graduated tail was clearly visible. The bird was not seen again.

MEASUREMENTS AND DESCRIPTION

The bird (Figure 1) was mainly in fresh first basic plumage but appeared to have substantial juvenal plumage remaining. It had a partially pneumatized skull and no indication of active molt. The upperparts were pale brown with dark brown centers, giving the back and crown a boldly streaked appear-

Figure 1. Lanceolated Warbler (*Locustella lanceolata*), Southeast Farallon Island, California, 11 September 1995. Note the unbarred graduated tail, the boldly streaked appearance of the back and uppertail coverts, and the streaking on the sides. It is highly unusual for the Pallas' Grasshopper Warbler (*Locustella certhiola*) to have streaking from the breast to the undertail coverts.

Photo by Mike Schultz

ance. The supercilium was buff, and a buff-yellow submoustachial stripe was set off by a dark brown malar streak and solid pale brown auriculars. Except for the belly, the underparts were streaked with brown. The throat was pale yellow-buff, the flanks were buff, and the belly was buffy white. The undertail coverts were pale buff with thin, dark brown shaft streaks along the distal one-third of each feather (Figure 2), while the rectrices were uniformly brown and the tail clearly graduated. The upper mandible was dark, contrasting with the uniformly pink lower mandible. The legs and feet were also pink, and the iris was olive-brown.

We recorded the following measurements: total length, 126 mm; bill length from the nostril, 7.1 mm; exposed culmen, 11.1 mm; tarsus, 19.7 mm; wing chord, 57 mm; notch on primary 9, 6.6 mm; tail (central rectrices), 45 mm; tail (outer rectrices), 32 mm; weight (with band), 12.3 g. Wing formula measurements were taken with primaries (p) numbered distally and secondaries (s) numbered proximally, as in Pyle et al. (1987). Wing formula: p10 reduced, longer than primary coverts by less than 1 mm; p9 notched; p8 emarginate and the longest primary; p9 < p8 by less than 1 mm; p7 < p8 by 2.0 mm; p6 < p8 by 4.2 mm; p5 < p8 by 6.8 mm; p4 < p8 by 7.0 mm; p3 < p8 by 9.0 mm; longest primary (p8) minus the longest inner secondaries (s1–6), 14.0 mm; primary projection beyond tertials (longest primary minus the longest tertial, s7), 11.0 mm.

Figure 2. Lanceolated Warbler (*Locustella lanceolata*), Southeast Farallon Island, California, 11 September 1995. Note the thin and distinct central streaks of the undertail coverts. The difference in undertail covert pattern is valid for separating all races of the Grasshopper Warbler (*Locustella naevia*) from *lanceolata*. The central streaks on the Grasshopper Warbler's undertail coverts are wide, diffuse, and reach the base of the feathers.

Photo by Mike Schultz

IDENTIFICATION SUMMARY

The genus *Locustella* is characterized by a broad well-graduated tail, long broad undertail coverts, brown upperparts, and skulking behavior (Cramp 1992). The genus consists of eight or nine species of varying size and with varying amounts of streaking and tail graduation. Of these, five or six species, the River (*L. fluviatilis*), Savi's (*L. luscinioides*), Gray's (*L. fasciolata*, including *amnicola*), Middendorff's (*L. ochotensis*), and Pleske's or Styan's (*L. pleskei*) warblers, are unstreaked so should not be confused with the Lanceolated. Within the genus *Locustella*, only the Grasshopper (*L. naevia*) and Pallas' Grasshopper (*L. certhiola*) warblers resemble the Lanceolated closely.

There are several plumage characteristics that are useful in separating the Lanceolated from Pallas' Grasshopper Warbler, but not all of these features can be used conclusively. The tail of Pallas' has distinctive dark barring, a black subterminal band, and a pale grayish tip, although the subterminal dark patches may not be a constant feature, so their absence may not rule out the species (Galsworthy 1990). The Pallas' has a white bulge on the tip of the inner web of the tertials, a feature not found on the Lanceolated. It is unusual for Pallas' to have streaking that extends from the breast to the undertail coverts (Galsworthy 1990), a feature that is a constant for the Lanceolated. A well-marked and broad supercilium characterizes the Pallas'

but its absence can not rule out the species. The supercilium of a Lanceolated is much less distinct and sometimes absent. One of the most useful features in separating these two species is the ground color of the upperparts. A distinct contrast between the olive-gray crown and the rufous back and rump of the Pallas' has been found to be constant in both adults and first-winter birds (Galsworthy 1990). The ground color of the Lanceolated, however, is a uniform olive-brown. Using a combination of the above criteria for separation of the Pallas' from Lanceolated, we have ruled out Pallas' as the possible identity of the Farallon bird. Ranging northeast to Kamchatka, Pallas' is the only other streaked *Locustella* likely to reach North America.

Separation of the Lanceolated from the Grasshopper Warbler (*L. naevia*) is challenging, but several features can be used to eliminate the latter. First, Cramp (1992) stated that the difference in undertail covert pattern is valid for separating all races of *naevia* from *lanceolata*. On the Lanceolated, the dark brown central streaks of the undertail coverts are thin, distinct, and restricted to the distal one-third of the feathers, as they were on the Farallon bird (Figure 2). The central streaks on the Grasshopper Warbler's undertail coverts are wide and diffuse, reaching the base of the feathers (Lewington et al 1991, Svensson 1992). Second, the range of the measurement for the notch on p9 recorded by Cramp (1992) for the Grasshopper (8.0–11.0 mm) is larger than that of the Lanceolated (6.0–8.0 mm). The Lanceolated's tertials have a well-defined border between the dark brown center and the chestnut edging, while the tertials of the Grasshopper tend to have a wide, diffuse margin between the central area and edging. Furthermore, the distinct streaking on the crown, rump, upper breast, and flanks of the Lanceolated differs from the more ill-defined and rounded or triangular streaks of the Grasshopper Warbler. These criteria clearly identify the Farallon bird as a Lanceolated Warbler. The Grasshopper Warbler breeds east only as far as northwestern Mongolia so is far less likely as a vagrant to North America than the Lanceolated.

The Japanese Marsh Warbler (*Megalurus pryeri*), with a very localized and limited breeding range in the Far East, resembles the Lanceolated in its streaked upperparts but differs in its unstreaked underparts, rufous upperparts, unstreaked nape, and much longer tail (P. J. Leader pers. comm.). Beaman (1995) recently placed this species in the genus *Locustella*.

DISTRIBUTION

The Lanceolated Warbler breeds in Eurasia from northern European Russia to Kamchatka, the Kurile Islands, and northern Japan. It winters in south-east Asia south to the Greater Sunda Islands, west to northern India and the Andaman Islands, and east to the Philippines (Cramp 1992, Rogers et al. 1995). With 63 records through 1994, this species is a rare vagrant to Britain, with the majority of records for Fair Isle, Shetland (Lewington et al. 1991, Rogers et al 1995). It is considered accidental in France, Belgium, Netherlands, Germany, Denmark, Norway, Sweden, and Yugoslavia. Finnish records include singing males in the summers of 1971, 1981, 1983, 1984, and 1985 (Lewington 1991), suggesting sporadic breeding. At Beidahe, Hebei Province, China, with a latitude almost identical to Southeast Farallon Island's, the passage of Lanceolated Warbler covers the period 22 August to 28 October,

with a peak in numbers in the last days of September and the first week of October (M. Williams, fide P. J. Leader pers. comm.).

The Lanceolated Warbler found on Southeast Farallon Island constitutes the first record of this species for California. The only other published record for North America is of at least 25 birds on Attu Island in the western Aleutian Islands, Alaska, 4 June–15 July 1984 (Tobish 1985). The Southeast Farallon bird's occurrence coincided with a remarkable variety of other Asian land birds that reached the west coast of North America during the fall of 1995: there were reports of several Yellow Wagtails (*Motacilla flava*), a Black-backed Wagtail (*Motacilla lugens*), an Arctic Warbler (*Phylloscopus borealis*), two Dusky Warblers (*Phylloscopus fuscatus*), and several Northern Wheatears (*Oenanthe oenanthe*) (G. McCaskie, P. Pyle, and D. Yee pers. comm.). Evidently, many migratory birds of northeastern Asia are capable of reaching California.

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We thank the Point Reyes Bird Observatory for the opportunity to volunteer on Southeast Farallon Island as well as Peter Pyle and Keith Hansen for their assistance in identification. Jon Dunn, Steve N. G. Howell, Paul Leader, Peter Pyle, and Philip Unitt read an earlier draft of this paper and provided valuable comments. Mike Schultz provided photographs of the bird.

LITERATURE CITED

Beaman, M. 1995. Palearctic Birds. A Checklist of the Birds of Europe, North Africa and Asia North of the Foothills of the Himalayas. Harrier Publ., England.

Bruun B., and Singer, A. 1970. Birds of Europe. McGraw-Hill, New York.

Cramp S. 1992. Handbook of the Birds of Europe, the Middle East, and North Africa, Vol. VI. Oxford Univ. Press, Oxford, England.

Galsworthy, A. C. 1990. Separation of first-winter Pallas's Grasshopper Warbler from Lanceolated Warbler. Hong Kong Bird Rep., pp. 155–164.

Lewington I., Alstrom, P., and Colston, P. 1991. A Field Guide to the Rare Birds of Britain and Europe. Harper Collins, London, England.

Pyle P., Howell, S. N. G., Yunick, R. P., and DeSante, D. F. 1987. Identification Guide to North American Passerines. Slate Creek Press, Bolinas, CA.

Rogers M. J., and the Rarities Committee. 1995. Report on rare birds in Great Britain in 1994. Br. Birds 88:535–538.

Svensson L. 1992. Identification Guide to European Passerines, 4th ed. L. Svensson, Stockholm.

Tobish T. G. 1985. The first record of *Locustella lanceolata* for North America. Auk 102:645.

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NOTES

NOTES ON NESTING BIRDS OF THE CIÉNEGA DE SANTA CLARA SALTFLAT, NORTHWESTERN SONORA, MEXICO

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The Ciénega de Santa Clara is a 20,000-hectare brackish wetland on the east side of the delta of the Río Colorado in Sonora, México. It has developed as a result of the discharge of brine from the Wellton–Mohawk Irrigation District, in southwestern Arizona, through the Wellton–Mohawk Main Outlet Drain Extension, since 1977. The northern third of the ciénega is covered by dense cattails (*Typha domingensis*), Common Reed (*Phragmites communis*), and bulrush (*Scirpus americanus*). The southern two-thirds of the wetland consist of unvegetated evaporative saltflats (Glenn et al. 1992). The area is important for conservation, yet little effort has been devoted toward its birds. Investigations have focused mainly on its vegetated portion, which supports a large population of the endangered Yuma Clapper Rail (*Rallus longirostris yumanensis*; see Eddleman 1989) and of wintering waterfowl. The use of the saltflats by birds has been mostly overlooked. Only Eddleman (1989) has reported on the birds his team recorded incidentally while surveying Yuma Clapper Rails.

On 20 April and 3–4 May 1994, we visited two sites on the saltflat, both adjacent to pools of fresh water. These are fed by underground springs located on the San Jacinto Fault, which runs through the eastern boundary of the ciénega to the Estero de Santa Clara and beyond into the Gulf of California. We have named the sites after the nearest villages, El Doctor and La Flor del Desierto, from which they are about 2 and 3.5 km to the southwest, respectively.

American Avocet (*Recurvirostra americana*). On 20 April 1994 we found 20 adults and 2 nests at El Doctor. One nest had four eggs, the other three eggs and one fledgling. On 3 May one of the nests had only eggshell fragments, and we presume successful hatching. We could not refind the other nest. Although no nesting of this species in Sonora has been confirmed previously, Mellink and Palacios (1993) suspected that avocets breed near Puerto Peñasco, also in the northern Gulf of California. Howell and Webb (1995) reported the species as a breeder only in northwestern Baja California and on the central plateau of Mexico.

Black-necked Stilt (*Himantopus mexicanus*). On 20 April we recorded about 20 adults, some of which were performing distraction behavior, at El Doctor. On 3 May three adults were performing the broken-wing display there. Eddleman (1989) reported stilts in roughly the same area in 1984, and G. Monson (pers. comm.) and S. M. Russell found a nest with three eggs a few kilometers north of the site on 9 April 1994. Howell and Webb (1995) did not record the species as breeding in Sonora.

Snowy Plover (*Charadrius alexandrinus*). At El Doctor there were about 40 adults and we located two nests. To reduce disturbance we did not search for more nests, but

it was evident that many more pairs were nesting. The nests had two and three eggs, respectively. One of the nests was lined with broken shells; the other had a dried mud bottom. Both nests were in old horse tracks. At La Flor del Desierto on 4 May we found 14 adults apparently attending chicks. This species had been reported in this area by Eddleman (1989). Our finding of over 50 adults at only two small sites surveyed, and Eddleman's report that the species nests at "at least a few sites," suggest that the breeding concentration is an important one. Van Rossem (1945) commented on the apparent summer absence of this species in Sonora, and Howell and Webb (1995) did not include the species as a breeder for Sonora. Its confirmed breeding in this area, as well as at La Salina oasis, northwestern Sonora (Mellink and Palacios 1993) and at Estero San José, southern Sonora (Palacios and Mellink 1995), indicates that scattered populations may inhabit suitable sites along the entire Sonoran coast.

Killdeer (*Charadrius vociferus*). We saw four adults, and heard more calling, at La Flor del Desierto on 4 May. We suspected nesting, but could not find evidence of this. That nesting might occur is not surprising, as this species breeds widely in northern Mexico (Howell and Webb 1995) and is a "common resident everywhere in suitable territory" in Sonora (van Rossem 1945).

Least Tern (*Sterna antillarum*). We found four pairs occupying nests and courting on the ground at El Doctor on 3 May. One nest had two eggs. On 4 May we found two pairs performing aerial courtship and fishing in the pool at La Flor del Desierto. This species, whose breeding in the area had been suspected by Eddleman (1989), is a common summer resident throughout the Gulf of California (Howell and Webb 1995) and breeds widely along its continental shore (Palacios and Mellink 1995).

Gale Monson, Gary Rosenberg, and Philip Unitt provided useful editorial comments, and Gale Monson also shared unpublished field observations with us.

LITERATURE CITED

Eddleman, W. R. 1989. Biology of the Yuma Clapper Rail in the southwestern U.S. and northwestern Mexico. Final report, U.S. Bureau of Reclamation and U.S. Fish & Wildlife Service, 7301 Calle Agua Salida, P. O. Box D, Yuma, AZ 85364.

Glenn, E. P., Felger, R. S., Búrquez, A., and Turner, D. S. 1992. Ciénega de Santa Clara: Endangered wetland in the Colorado River Delta. Nat. Res. J. 32:817–824.

Howell, S. N. G., and Webb, S. 1995. A Guide to the Birds of Mexico and Northern Central America. Oxford Univ. Press, New York.

Mellink, E., and Palacios, E. 1993. Notes on the breeding coastal waterbirds in northwestern Sonora. W. Birds 24:29–37.

Palacios, E., and Mellink, E. 1995. Breeding birds of Estero Tóbari and Estero San José, southern Sonora. W. Birds 26:99–103.

Palacios, E., and Mellink, E. 1996. Status of the Least Tern in the Gulf of California. J. Field Ornithol. 67:48–58.

Van Rossem, A. J. 1945. A distributional survey of the birds of Sonora, Mexico. Occas. Pap. Mus. Zool., La. State Univ. 21.

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AGE AND SEX DETERMINATION IN ANNA'S HUMMINGBIRD BY MEANS OF TAIL PATTERN

SHIRLEY WELLS, deceased

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While banding Anna's Hummingbirds (*Calypte anna*) on the Palos Verdes Peninsula, southern California, between 1970 and 1976 (Wells et al. 1978), Wells noted three predominant color patterns on the outermost rectrices of the birds handled (Figure 1). By pulling the outermost rectrix on one side of fledglings and then subsequently recapturing these marked individuals and noting the shape, color, and pattern of the regrown rectrices, she confirmed that these patterns were age- and sex-specific. This method of sexing may be applied to nestlings as well as fledglings and adults. We describe these differences for banders and population biologists interested in sex ratios or life tables to enable them to determine the sex and age of Anna's Hummingbirds. Our confirming data are based on an examination of 121 specimens in the collections of the California Academy of Sciences (CAS), San Francisco, California, and the Museum of Vertebrate Zoology (MVZ), Berkeley, California. These included 79 females and 42 males.

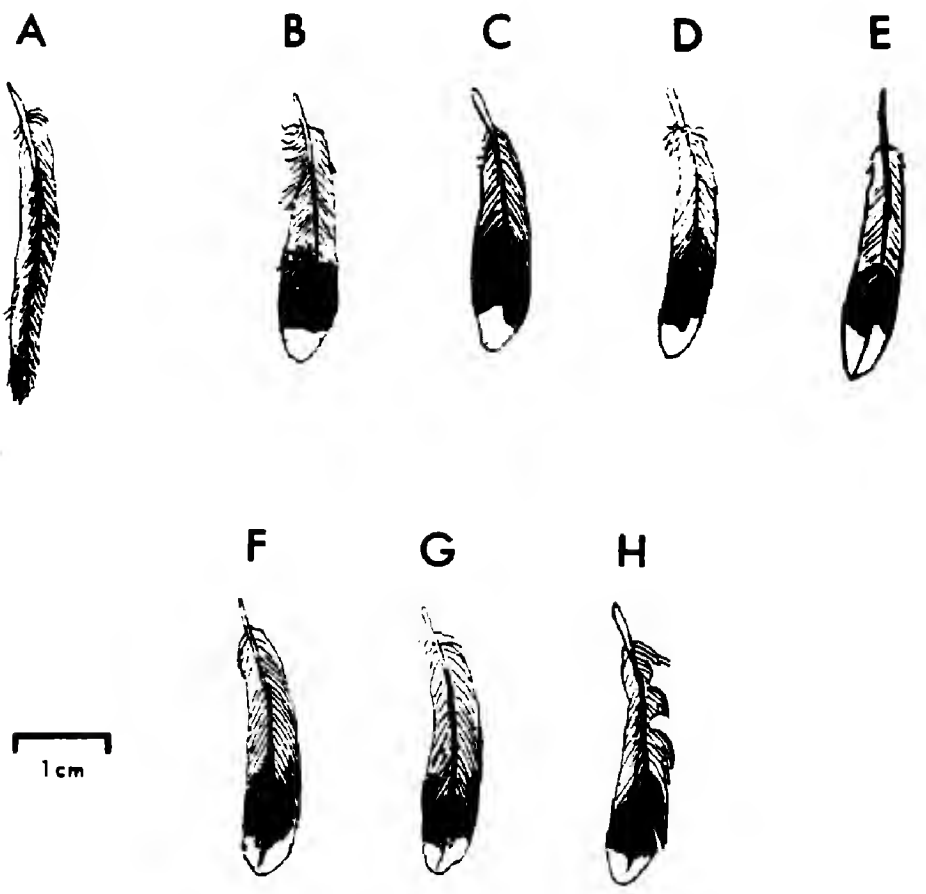

Figure 1. Outermost rectrices of three age classes of Anna's Hummingbirds. A, adult male; B–E, adult or immature females; F–H, immature males.

Understanding the timing and sequence of molts is important in any age and sex determination by plumage. Williamson (1956) found that all Anna's Hummingbirds, both adults and juveniles, have one complete molt each year. An individual's post-juvenile molt lasts 4 to 6 months. An adult's annual molt requires about 3 months. Complete periods of molt are as follows: juvenile females, April to January; juvenile males, May to February; adult males, early June to January; adult females, May to at least October. The outer rectrices tend to be molted late in the sequence of feather tracts, after the central rectrices are nearly or fully grown. Adults molt outer rectrices from July to October. Juveniles molt outer rectrices from July to perhaps January.

We noted, as did Williamson (1956), that the distinctive outermost rectrix (Figure 1A) and full gorget of adult males easily distinguish them from the other age and sex classes. Therefore, we don't consider them further here. Williamson (1956) and Baltosser (1987) also noted that immature males and females in fresh plumage can be distinguished from adult females by the form of the secondaries, which are rounded in immatures (Figure 2A) but are obtusely pointed centrally and incised on each side of the rachis in adult females (Figure 2B). This method is sometimes difficult to use, notably when the feather tips are worn.

Williamson also noted that the tail is a useful criterion to separate adult females from immatures prior to their post-juvenile molt. The outermost two rectrices in immature males are similar to those of females in being tricolored, with a greenish or grayish basal zone, a black subterminal band, and a white distal zone. He pointed out that females have more white than males but did not comment on how adult and immature females could be distinguished. Baltosser (1987) noted that the outermost rectrices of immature males differ from those of females in that males have black rachises that bisect the white rectrix tips whereas the distal portions of females' rectrices are all white. During our banding we encountered several females with black rachises. However, Baltosser's criteria are still useful if used in conjunction with other characters, as developed below.

In some females the boundary between the white tip and the black subterminal band runs almost straight across the feather, that is, it is perpendicular to the rachis (Figure 1B). More commonly there is a white notch intruding into the middle of the subterminal band where the rachis and small portions of one or both vanes are devoid of melanin (Figure 1C). On some females, the white notch projects inward on only one vane (Figure 1D). Occasional females have a short projection of the black rachis into the white rectrix tip, but not enough to bisect this tip. Very rarely a female has a black rachis that actually bisects the white tip (Figure 1E). All but one of the 79 specimens marked female on the label possessed one of these tail patterns. The exceptional individual had red feathers growing into the crown and was thus an immature male misidentified as a female.

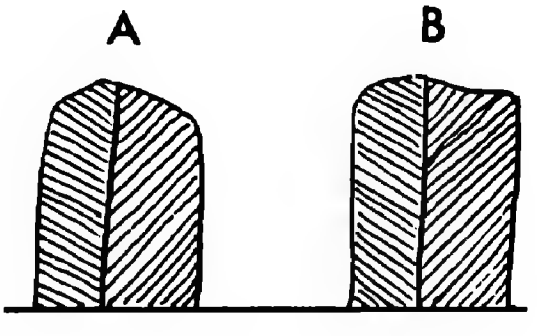

Figure 2. Secondary feather tips of Anna's Hummingbirds. A, immature; B, adult.

Immature males' outermost tail feathers differ from those of nearly all females in that the rachis is black, extending well out into the white rectrix tip, so that a black line bisects this white tip (Figure 1F–H). Moreover, the subterminal band forms a black chevron where it narrows into the black rachis, with the chevron's apex pointing distally toward the rectrix tip. This black chevron is absent from the rectrices of females. The black chevron may be angled acutely (Figure 1F), moderately (Figure 1G), or quite obtusely (Figure 1H), but, in combination with the black rachis bisecting the white tip, it is diagnostic of a male. Baltosser (1987) described and illustrated the black rachis but did not comment on the inverted chevron. All but seven of 42 specimens marked "male" on the label had both the black chevron and black rachis bisecting the rectrix tip. These seven exceptions (CAS 14302, 18977, and 46005; MVZ 52207, 145598, 158804, and 168423) we believe to have been missexed. Six of the seven have no or very slight corrugation of the bill, indicating they are adults (Ortiz-Crespo 1972, Baltosser 1987). The seventh, CAS 46005, appears to have moderate bill corrugation, but it also has unworn secondaries clearly of the adult shape. None of these specimens has any iridescent red feathers in the crown, on the auriculars, or on the lower corner of the gorget, suggesting that all seven were in fact missexed adult females. All seven exceptional "males" had outermost rectrix patterns entirely typical of what we've found in adult females, not intermediate or ambiguous in any way. Adult females often have a large patch of iridescent red feathers on the center of the throat that may have caused some collectors to assume they were immature males.

Three known females handled during the banding studies had a black rachis bisecting the white tip, as found in immature males, but were lacking the black chevron. These rectrices were pulled and are in the collection of the California Academy of Sciences. Wells noted uncorrugated bills on two of them at the time the rectrices were pulled. These two birds still exhibited adult female plumage (absence of gorget) the following year. The third was an adult when first captured and, when captured two years later, still had no gorget.

In summary, immature males can be distinguished from both age classes of females by the black chevron narrowing into the black rachis that bisects the white rectrix tip. Conversely, females (both adult and immature) usually have a white rachis and always have a white notch intruding into the black subterminal band. The adult males' outermost rectrix is narrow and lacks the broad white tip. These same characteristics may be used to age and sex the related Costa's Hummingbird (*C. costae*, P. Pyle pers. comm.).

We thank Ned K. Johnson and Barbara Stein for permission to examine the specimens at the Museum of Vertebrate Zoology, and for loaning some of them. We also thank William Baltosser and Peter Pyle who commented on an earlier version of this paper. Judy Merrill drew the fine reproductions of rectrices.

LITERATURE CITED

Baltosser, W. H. 1987. Age species and sex determinations of four North American hummingbirds. N. Am. Bird Bander 12:151–166.

Ortiz-Crespo, F. I. 1972. A new method to separate immature and adult hummingbirds. Auk 89:851–857.

Wells, S., Bradley, R. A., and Baptista, L. F. 1978. Hybridization in *Calypte* hummingbirds. Auk 95:537–549.

Williamson, F. S. L. 1956. The molt and testis cycles of the Anna Hummingbird. Condor 58:342–366.

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